



LAKESHORE PARK BUILDING JSP17-43

LAKESHORE PARK BUILDING JSP 17-43

Consideration at the request of NSA Architects, Engineering, Planners for approval of Preliminary Site Plan and Stormwater Management Plan. The subject property is located in Section 3 west of Old Novi Road and south of South Lake Drive and is zoned R-4, One Family Residential. The applicant is proposing an update to Lakeshore Park in the City of Novi including an approximately 9,400 square foot community center, 129 parking spaces, one pavilion, and a bike lane to connect to the mountain biking trails.

Required Action

Approval/Denial Preliminary Site Plan and Stormwater Management Plan

REVIEW	RESULT	DATE	COMMENTS
Planning	Approval recommended	8-8-17	<ul style="list-style-type: none"> • ZBA variance for front building setback, interior side yard building setback, and location of bike rack • Items to be addressed by the applicant on revised Final Site Plan
Engineering	Approval recommended	8-16-17	<ul style="list-style-type: none"> • Items to be addressed by the applicant on revised Final Site Plan
Landscaping	Approval recommended	8-13-17	<ul style="list-style-type: none"> • Landscape waiver for lack of 4 ft. berm along north parcel lot line • Landscape waiver for lack of street trees along South Lake Shore Drive • Landscape waiver for foundation plantings located away from the building • Items to be addressed by the applicant on revised Final Site Plan
Traffic	Approval recommended	8-11-17	<ul style="list-style-type: none"> • Items to be addressed by the applicant on revised Final Site Plan
Fire	Approval not recommended	8-7-17	<ul style="list-style-type: none"> • Items to be addressed by the applicant on revised Final Site Plan

MOTION SHEET

Approval – Preliminary Site Plan

In the matter of Lakeshore Park Building JSP17-43, motion to **approve** the Preliminary Site Plan based on and subject to the following:

- a. Landscape waiver from Section 5.5.3.B.ii and iii for lack of a 4 ft. high berm adjacent to the public right-of-way along the north parcel lot line (*due to the building being 3 ft. below the road at the road's crest and the site layout and access to the beach make the berm along the frontage very difficult*), which is hereby granted;
- b. Landscape waiver from Section 5.5.3.E.i.c and the Landscape Design Manual 1.d. for lack of street trees along South Lake Drive (13 required; 0 provided) (*due to insufficient room between the right-of-way line and the street*), which is hereby granted;
- c. Landscape waiver from Section 5.5.3.D for providing foundation plantings away from the building in the swale across the perimeter walkway from the building (*due to the plantings being close to the building and will appear at the foundation when viewed from South Lake Drive*), which is hereby granted;
- d. Section 9 Façade waiver for underage of brick (30% minimum; 0% proposed) due to use of stone and overage of standing seam metal on the roof (25% maximum; 51% on south and 58% north provided) (*because the extensive use of stone is visually equivalent to the minimum requirement for brick and the building exhibits well balanced proportions and composition of materials*), which is hereby granted;
- e. Zoning Board of Appeals variance from Section 3.6.2.B to allow a reduced building setback in the front yard (75 ft. minimum; 34.17 ft. provided);
- f. Zoning Board of Appeals variance from Section 3.6.2.B to allow a reduced building setback in the interior side yard (75 ft. minimum; 60.85 ft. provided);
- g. The findings of compliance with Ordinance standards in the staff and consultant review letters, the conditions and items listed in those letters, and with these items being addressed on the revised Final Site Plan; and
- h. (*additional conditions here if any*)

(This motion is made because the plan is otherwise in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)

-AND-

Approval – Stormwater Management Plan

In the matter of Lakeshore Park Building JSP17-43, motion to **approve** the Stormwater Management Plan based on and subject to:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Electronic Stamping Set; and
- b. (*additional conditions here if any*)

(This motion is made because it otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)

-OR-

Denial – Preliminary Site Plan

In the matter of Lakeshore Park Building JSP17-43, motion to **deny** the Preliminary Site Plan... *(because the plan is not in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

-AND-

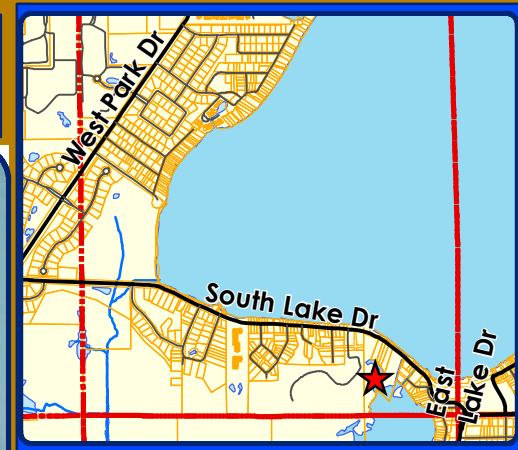
Denial – Stormwater Management Plan

In the matter of Lakeshore Park Building JSP17-43, motion to **deny** the Stormwater Management Plan... *(because the plan is not in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*


Maps
Location
Zoning
Future Land Use
Natural Features

JSP17-43: Lakeshore Park Building

Location Map




LEGEND

-  Sections

 **City of Novi**
Community Development Department
Civic Center
45175 W Ten Mile Road
Novi, MI 48375
www.cityofnovi.org

Map Author: Kirsten Mellem
Date: 08/15/17
Project: JSP17-43 Lakeshore Park Building
Version #: 1

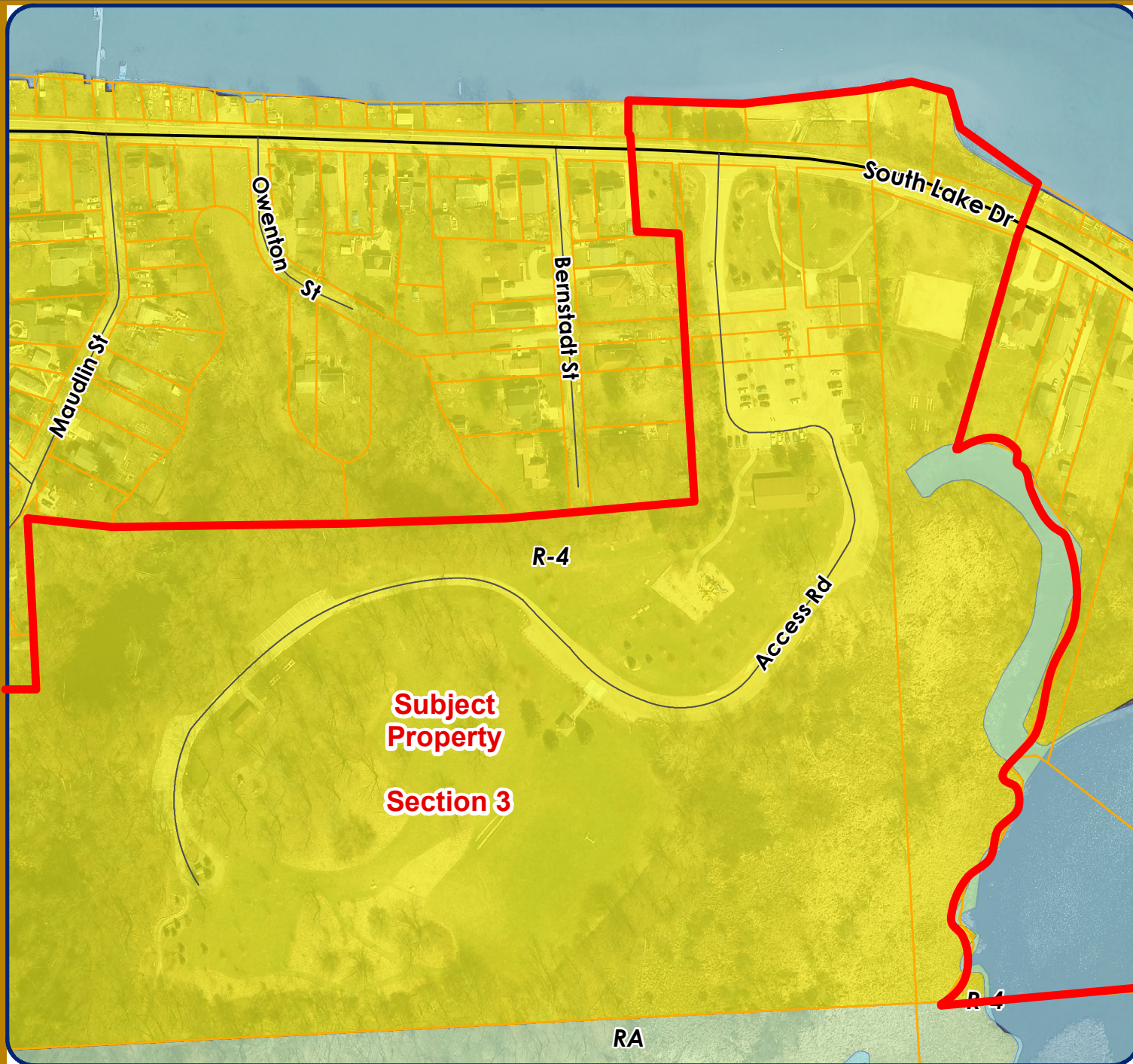
0 50 100 200 300 Feet
1 inch = 208 feet



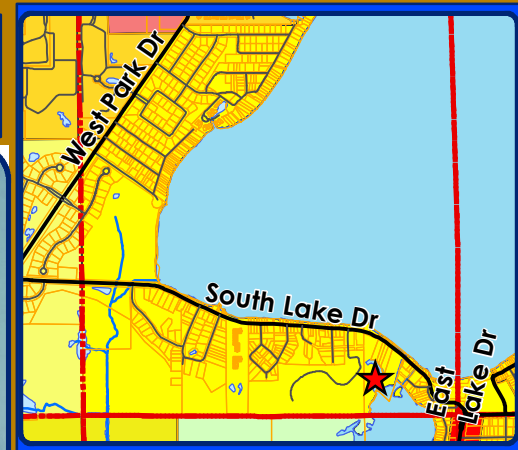
MAP INTERPRETATION NOTICE
Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City of Novi GIS Manager to confirm source and accuracy information related to this map.

JSP17-43: Lakeshore Park Building

Zoning Map



**Subject
Property**
Section 3



LEGEND

- Sections
- R-A: Residential Acreage
- R-1: One-Family Residential District
- R-2: One-Family Residential
- R-4: One-Family Residential District
- RM-1: Low-Density Multiple Family
- B-2: Community Business District
- B-3: General Business District

CITY OF NOVI
Community Development Department
Civic Center
45175 W Ten Mile Road
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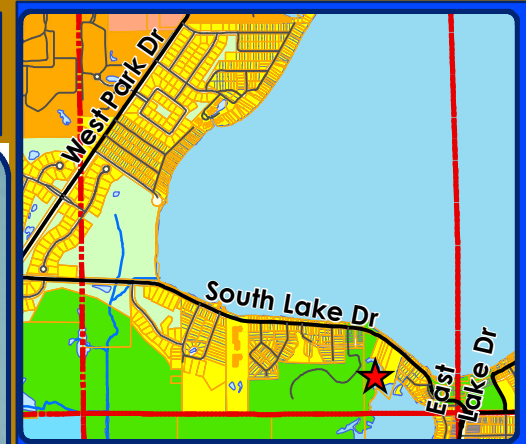
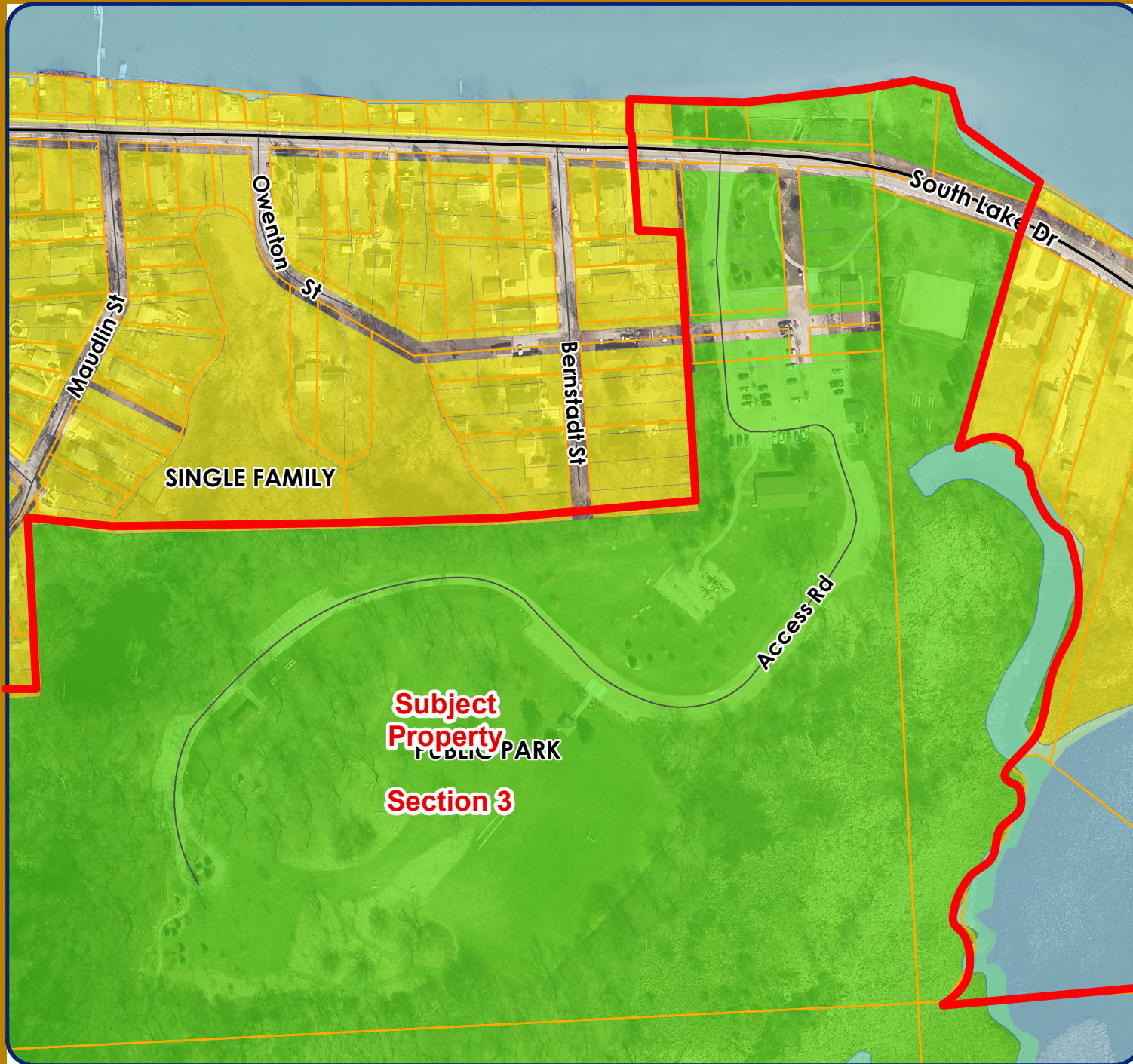
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0 50 100 200 300 Feet
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JSP17-43: Lakeshore Park Building

Future Land Use Map



LEGEND

- Sections
- FUTURE LAND USE
 - Single Family
 - Multiple Family
 - Local Commercial
 - Public
 - Public Park
 - Private Park



City of Novi

Community Development Department
Civic Center
45175 W Ten Mile Road
Novi, MI 48375
www.cityofnovi.org

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1 inch = 208 feet

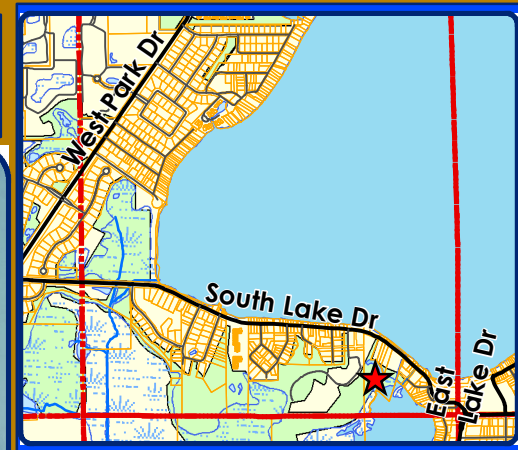


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JSP17-43: Lakeshore Park Building

Natural Features Map

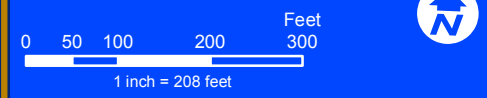


- LEGEND**
- Sections
 - WETLANDS
 - WOODLANDS



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SITE PLAN

(Full plan set available for viewing at the Community Development Department)

PARK & RECREATION CENTER AT LAKE SHORE PARK

601 SOUTH LAKE DRIVE

NOVI, MI 48377



SITE PLAN APPROVAL

ISSUE DATE: 07/26/17

CLIENT:

CITY OF NOVI

45175 TEN MILE ROAD
NOVI, MI 48375



ARCHITECTURAL / MECHANICAL / PLUMBING:

NSA ARCHITECTS, ENGINEERS, PLANNERS

23761 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

(248) 477-2444



CIVIL & LANDSCAPE CONSULTANTS:

PROFESSIONAL ENGINEERING ASSOCIATES

2430 ROCHESTER CT. SUITE 100
TROY, MI 48063-1872

(248) 689-9090

ELECTRICAL ENGINEERING CONSULTANTS:

ETS ENGINEERING, INC.

418-1/2 S. WASHINGTON AVE.
ROYAL OAK, MI 48067

(248) 744-0360

STRUCTURAL ENGINEERING CONSULTANTS:

SHYMANSKI & ASSOCIATES, LLC

33426 FIVE MILE ROAD
LIVONIA, MI 48154

(734) 855-4810



INDEX OF DRAWINGS

GENERAL	
T-001	TITLE SHEET
CIVIL	
C-1.1	TOPOGRAPHIC SURVEY-NORTH
C-1.2	TOPOGRAPHIC SURVEY-SOUTH
C-2.0	DEMOLITION PLAN
C-3.0	OVERALL PLAN
C-3.1	SITE PLAN-NORTH
C-3.2	SITE PLAN-SOUTH
C-4.1	GRADING PLAN-NORTH
C-4.2	GRADING PLAN-SOUTH
C-5.1	UTILITY PLAN-NORTH
C-5.2	UTILITY PLAN-SOUTH
C-6.0	SESC PLAN
C-7.0	UTILITY PROFILES
C-10.1	NOTES AND DETAILS
C-10.2	DETAILS
C-10.3	RETENTION WALL DETAILS
C-11.1	DRAINAGE PLAN
C-11.2	DRAINAGE CALCULATIONS
LANDSCAPE	
L-1.0	LANDSCAPE PLAN
L-1.1	ENLARGED LANDSCAPE PLAN
L-1.2	LANDSCAPE DETAILS
L-2.1	LANDSCAPE SPECIFICATIONS
L-2.2	LANDSCAPE SPECIFICATIONS
T-1.0	TREE PRESERVATION PLAN
T-1.1	EXISTING TREE LIST
ELECTRICAL	
PE-01	SITE PHOTOMETRIC PLAN
ARCHITECTURAL	
A-101	FLOOR PLAN
A-121	ROOF PLAN
A-201	EXTERIOR ELEVATIONS
A-203	EXTERIOR RENDERINGS
A-401	GARAGE ADDITION @ EXISTING TOILET ROOMS
A-501	PICNIC PAVILION

City of Novi
Lakeshore Park
Issue Date: July 26, 2017
SITE PLAN/SITE PLAN APPROVAL

248-477-2444
248-477-2445
www.ets-engineering.com

23761 Research Drive
Farmington Hills
Michigan 48335



PROJECT NO.
216404.00

SHEET

SPA T-001

BUILDING CODE DATA

PROJECT DESCRIPTION: SINGLE STORY PARK & RECREATION CENTER		CONSTRUCTION TYPE: TYPE II-B
PARKING PROVIDED: EXISTING	TOTAL BUILDING AREA: ALLOWABLE PER FLOOR (TABLE 505.2) BASED UPON A-3 USE GROUP, FULLY SPRINKLED:	24,000 SF
BUILDING DESIGN CODES: 2015 MICHIGAN BUILDING CODE 2014 NATIONAL ELECTRICAL CODE 2015 MICHIGAN PLUMBING CODE 2015 MICHIGAN MECHANICAL CODE	ACTUAL BUILDING AREA (TO FACE OF EXTERIOR COLUMNS UNDER ROOF PROJECTION):	11,541 SF
ENERGY CODE: STATE OF MICHIGAN	BUILDING HEIGHT: ALLOWABLE (TABLE 504.3) BASED UPON A-3 USE GROUP, SPRINKLED:	75 FEET
ACCESSIBILITY CODE: STATE OF MICHIGAN CABO/ANSI A117.1-2009	ACTUAL (MID-POINT OF LARGEST HIP ROOF)	14.5 FEET
SEISMIC CATEGORY: II	FIRE SPRINKLER DESIGN:	DRY PIPE, FULLY SPRINKLED
USE GROUP: A-3 (ASSEMBLY)	OCCUPANT LOAD (TABLE 1004.1.2):	LAKESHORE CAMP ROOM, MULTI-PURPOSE ROOMS (ASSEMBLY: TABLES & CHAIRS) 4,555 SF / 15 = 304 OCC
PLUMBING FIXTURES:	STORAGE, MECH. ROOM, IT ROOM, JANITOR CLOSET	1,420 SF / 300 = 5
REQUIRED:	MAXIMUM CALCULATED OCCUPANCY:	309 OCC
WATER CLOSETS 1/85	MAXIMUM TRAVEL DISTANCE (ACTUAL):	75'-0" (ALONG CORRIDOR)
URINALS -		
LAVS 1/200		
WOMEN'S 1/125		
MEN'S 1/125		
(*MAY SUBSTITUTE 1 URINAL FOR 67% OF REQUIRED WATER CLOSETS - MPC SECTION 419.2)		
DRINKING FOUNTAIN: 1/500 OCC		
SERVICE SINK: 1		
PROVIDED:		
WATER CLOSETS 3		
URINALS -		
LAVS 2		
WOMEN'S 2		
MEN'S 2		
DRINKING FOUNTAIN: 1		
SERVICE SINK: 1		

DIMENSION NOTES

- 1.) AT STONE VENEER ON CMU DIMENSIONS ARE FROM EXTERIOR FACE OF STRUCTURAL CMU WALL.
- 2.) AT FIBER CEMENT BOARD ON CMU DIMENSIONS ARE FROM EXTERIOR FACE OF STRUCTURAL CMU WALL.
- 3.) REFER TO STRUCTURAL AND ARCHITECTURAL DETAILS FOR ADDITIONAL INFORMATION.

ECONOMIC IMPACT INFORMATION

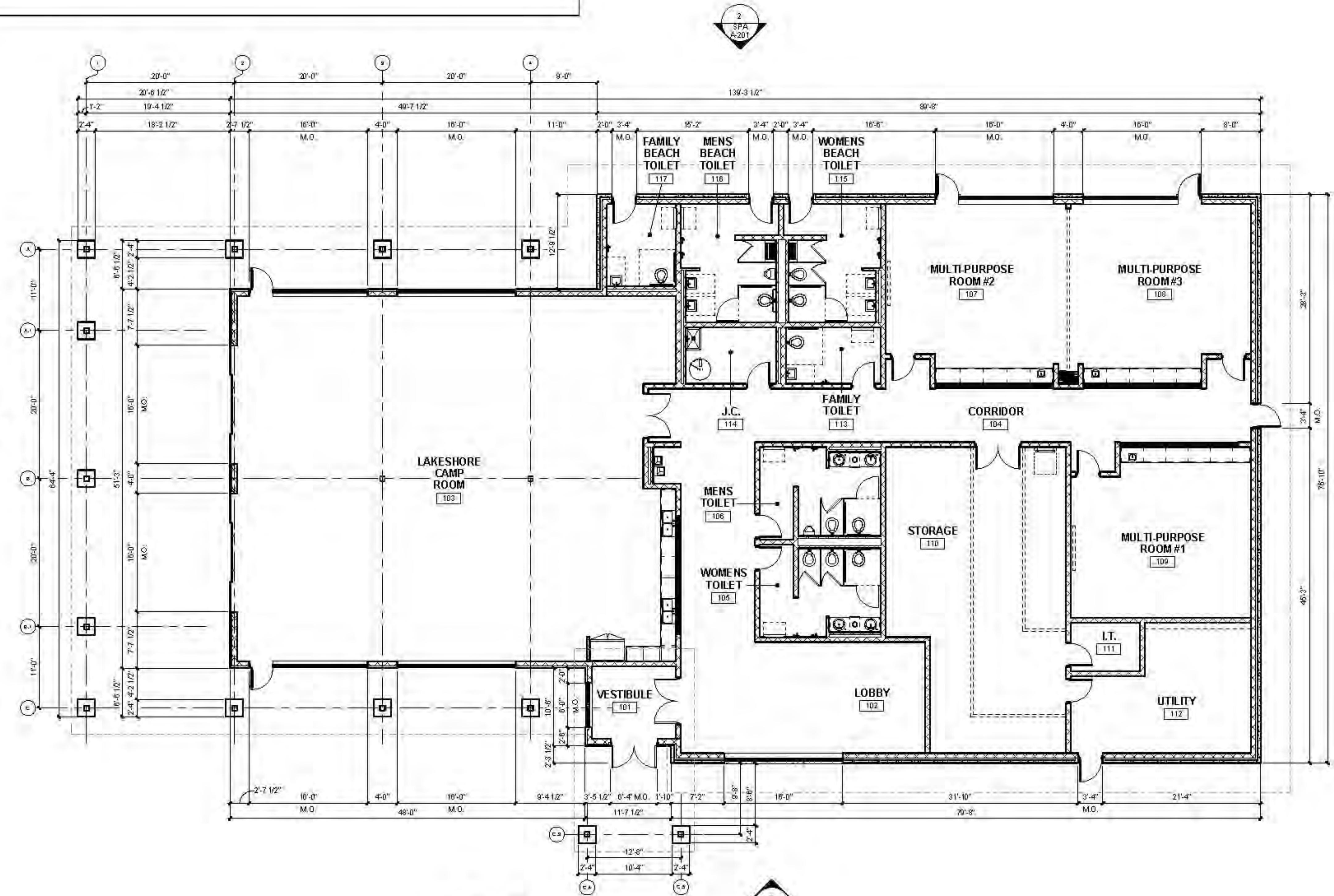
THE PROPOSED PROJECT (PARK & RECREATION CENTER AT LAKESHORE PARK) HAS A BUDGET OF FIVE (\$5) MILLION DOLLARS. THE CDM INSTITUTE ESTIMATES THAT THIS PROJECT WILL GENERATE 50 CONSTRUCTION JOBS. NO ADDITIONAL STAFF WILL OCCUPY THE SITE.

- GENERAL NOTES**
- 1.) EXTERIOR DIMENSIONS - SEE DIMENSION NOTES ON SHEET A-100A.
 - 2.) ALL INTERIOR DIMENSIONS ARE TO FACE OF CMU UNLESS OTHERWISE NOTED.
 - 3.) EXTERIOR WALLS ARE TYPE 20/20A, INTERIOR WALLS ARE TYPE 1 - TYPICAL UNLESS OTHERWISE NOTED, REFER TO WALL SCHEDULE.
 - 4.) ALL COUNTERTOPS TO BE 24" DEEP UNLESS OTHERWISE NOTED.
 - 5.) PROVIDE DRYWALL CONTROL JOINTS MAX. 30" O.C. WITH USG 093 CONTROL JOINT. PROVIDE METAL STUD ON EACH SIDE OF CONTROL JOINT. LOCATE AT HEAD OF DOOR FRAMES WHERE POSSIBLE, AT ALL CATHEDRAL CEILING PEAKS AND AS ADDITIONALLY NOTED ON DRAWINGS.
 - 6.) MARKING AND IDENTIFICATION: FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE IDENTIFIED WITH SIGNS OR STENCILING. SUCH IDENTIFICATION SHALL:
 - A) BE LOCATED IN ACCESSIBLE CONCEALED FLOOR, FLOOR/CEILING, OR ATTIC SPACES
 - B) BE LOCATED WITHIN 15 FEET OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30 FEET MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION
 - C) INCLUDING LETTERING NOT LESS THAN 3 INCHES IN HEIGHT WITH A MINIMUM 3/8 INCH STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORKINGS: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENING" OR OTHER WORDING.
 - 7.) LOCATE ALL DOORS 4" FROM INSIDE FACE OF STUD TO SACK OF DOOR FRAME, TYPICAL U.O.N.



Client:
CITY OF NOVI
Project Title:
Lakeshore Park
Park & Recreation Building
801 South Lake Drive
Novi, MI 48377

Issued Date: 07-26-2017
Issued For: SITE PLAN APPROVAL



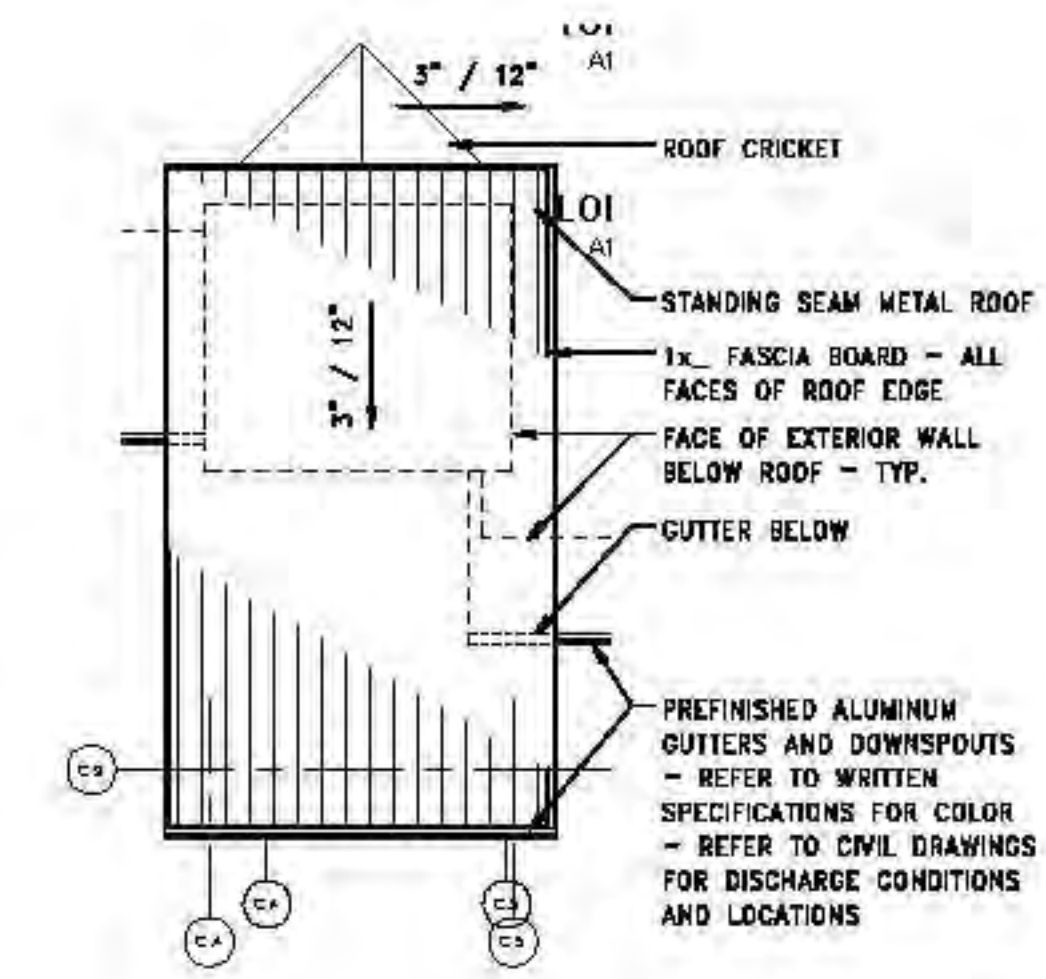
FLOOR PLAN
1/8" = 1'-0"

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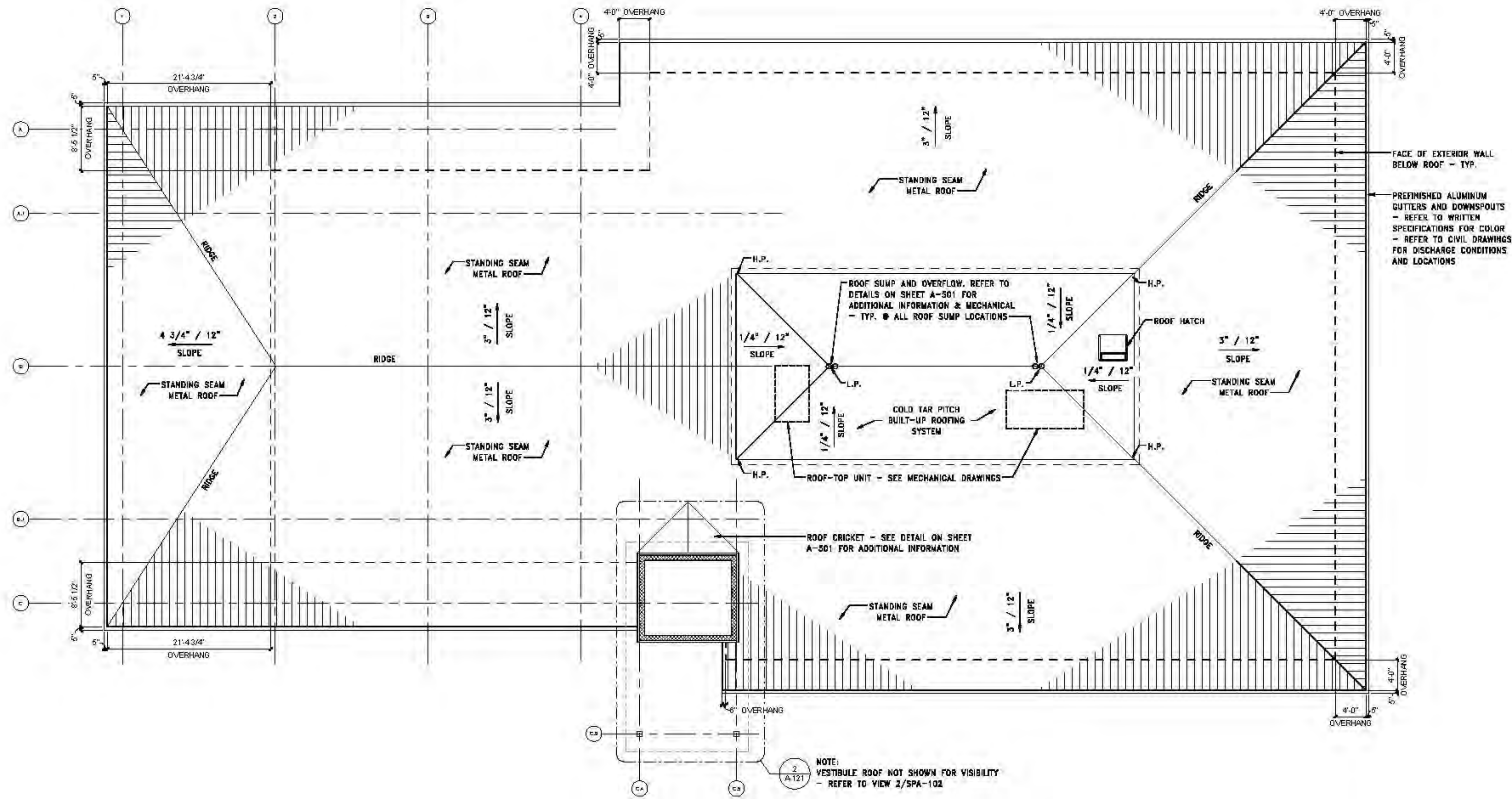
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Checked: JB Approved: RB
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Project Number: 216404.00

Sheet Title:
FLOOR PLAN

Sheet Number:
SPA A-101



2 VESTIBULE ROOF PLAN
1/8" = 1'-0"



1 SPA ROOF PLAN
1/8" = 1'-0"

Client:



Project Title:
Lakeshore Park
Park & Recreation Building
801 South Lake Drive
Novi, MI 48377

Issued Date: 07-26-2017
Issued for: SITE PLAN APPROVAL

Drawn: DE/JM
Designed: DE
Checked: JB
Approved: RB
CAD Drawing File:
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Project Number: 216404.00

Sheet Title:
ROOF PLAN

Sheet Number:
SPA A-121

EXTERIOR ELEVATION KEYNOTE LEGEND	
01	STONE VENEER
02	STONE COLUMN WRAP
03	FIBER CEMENT SIDING: HORIZONTAL BOARDS - WOOD-GRAIN FINISH
04	FIBER CEMENT TRIM: WOOD-GRAIN FINISH
05	GLUE-LAMINATED WOOD FRAMING MEMBER
06	STANDING SEAM METAL ROOFING SYSTEM
07	METAL GUTTER
09	GLASS & ALUMINUM STOREFRONT
10	GLASS & ALUMINUM ENTRY DOOR
12	GLASS & ALUMINUM FIXED WINDOW

	NORTH			SOUTH			EAST			WEST		
	INTERNAL AREA	% ACTUAL	% ALLOWED	INTERNAL AREA	% ACTUAL	% ALLOWED	INTERNAL AREA	% ACTUAL	% ALLOWED	INTERNAL AREA	% ACTUAL	% ALLOWED
STONE	557.99 SF	28%	50%	693.00 SF	32%	50%	739.00 SF	60%	50%	238.45 SF	25%	50%
WOOD-GRAIN FIBER CEMENT	285.12 SF	14%	50%	372.22 SF	17%	50%	60.51 SF	3%	50%	424.78 SF	44%	50%
STANDING SEAM METAL	1169.87 SF	58%	25%	1115.29 SF	51%	25%	421.18 SF	35%	25%	299.71 SF	31%	25%
TOTAL	2012.95 SF			2180.51 SF			1220.67 SF			962.95 SF		

FACADE WAIVER REQUEST

A FEW OF THE PROPOSED EXTERIOR MATERIALS DIFFER SLIGHTLY FROM THE STRICT APPLICATION OF THE SCHEDULE REGULATING FACADE MATERIALS.

A FACADE WAIVER IS REQUESTED FOR THE OVERAGE OF STANDING SEAM METAL ON ALL ELEVATIONS. THE STANDING SEAM METAL ROOF IS OVER THE MAXIMUM PERCENTAGE OF 25% SIMPLY DUE TO THE FOOTPRINT OF THE BUILDING AND THE NATURE OF THE ROOF GEOMETRY.

A FACADE WAIVER IS REQUESTED FOR THE OVERAGE OF STONE ON THE EAST ELEVATION. THIS 10% OVERAGE IS A RESULT OF THE DESIGN, AS THE INTENT IS TO CONTINUE THE STONE AROUND ONE WING OF THE STRUCTURE.

FACADE MATERIAL CALCULATION NOTES:

PER THE NOVI ZONING ORDINANCE: 5.15 SCHEDULE REGULATING FACADE MATERIALS:

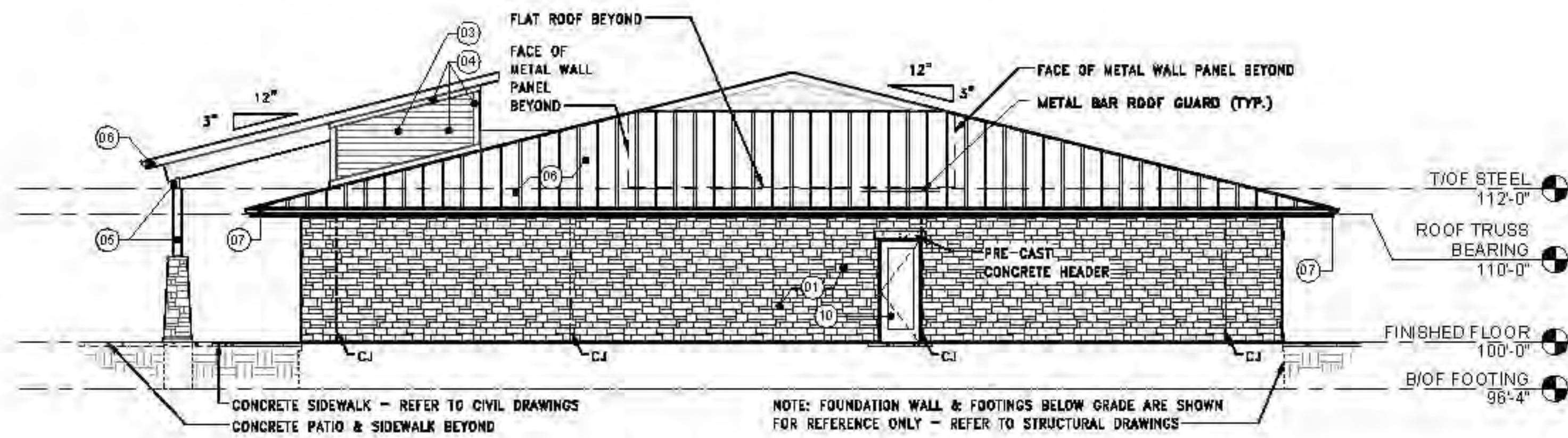
NOTE 7: STANDING SEAM METAL: MUST HAVE FACTORY APPLIED PERMANENT COLORED FINISH.

NOTE 10: THE PERCENTAGE OF WOOD SIDING, PAINTED TRIM AND BATTEN SIDING MAY BE INCREASED TO 50% IN ZONING DISTRICTS RA THROUGH RA, RM-1 AND RM-2, WHEN THE USE OF WOOD SIDING IS CONSISTENT WITH RESIDENTIAL STYLE ARCHITECTURE.

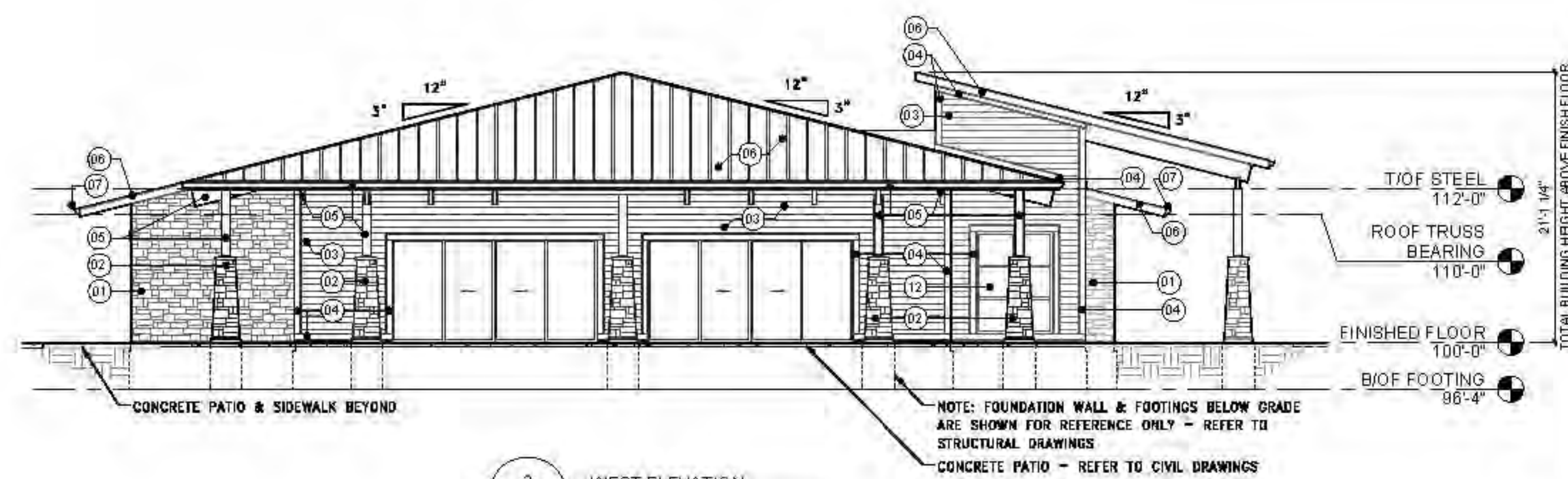
NOTE 13: WOOD GRAIN TEXTURED FIBROUS CEMENT SIDING SHALL BE CONSIDERED WOOD SIDING WITH RESPECT TO THIS ORDINANCE.

- ROOF AREAS HAVING SLOPES 3:12 AND GREATER SHALL BE CONSIDERED FACADES.

- VISION GLASS AND DOORS SHALL BE OMITTED FROM FACADE MATERIAL CALCULATIONS AND PERCENTAGES.



4 EAST ELEVATION
SPA A-101
1/8" = 1'-0"



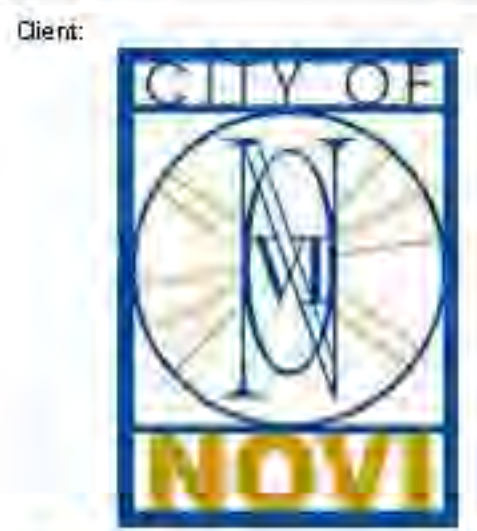
3 WEST ELEVATION
SPA A-101
1/8" = 1'-0"



2 NORTH ELEVATION
SPA A-101
1/8" = 1'-0"



1 SOUTH ELEVATION
SPA A-101
1/8" = 1'-0"



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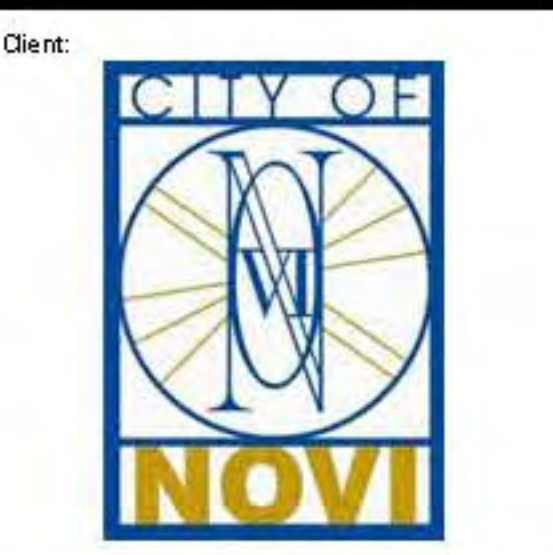
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Issued Date: 07-26-2017
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Drawn: DE/JM
Designed: DE
Checked: JB
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Project Number: 216404.00

Sheet Title:
EXTERIOR ELEVATIONS

Sheet Number: SPA A-201



Project Title:
Lakeshore Park
Park & Recreation Building
601 South Lake Drive
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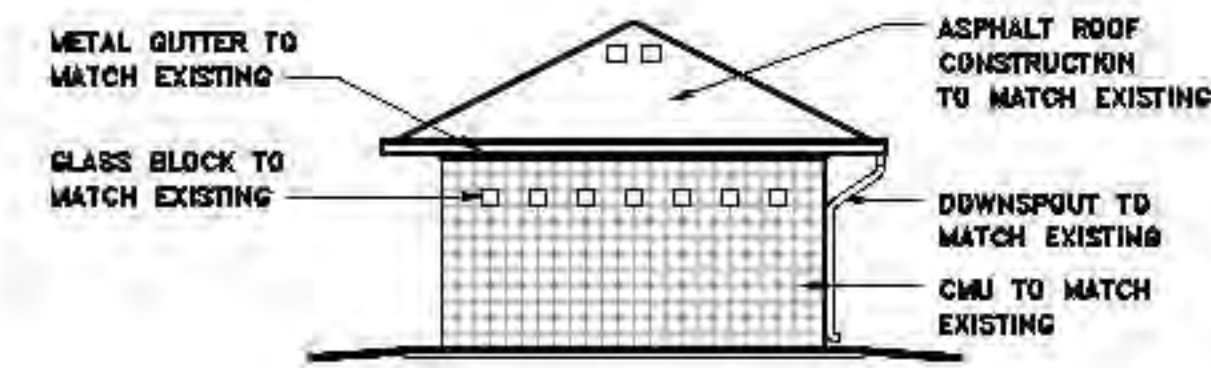
Sheet Title:
**EXTERIOR
RENDERINGS**

Sheet Number: SPA A-203

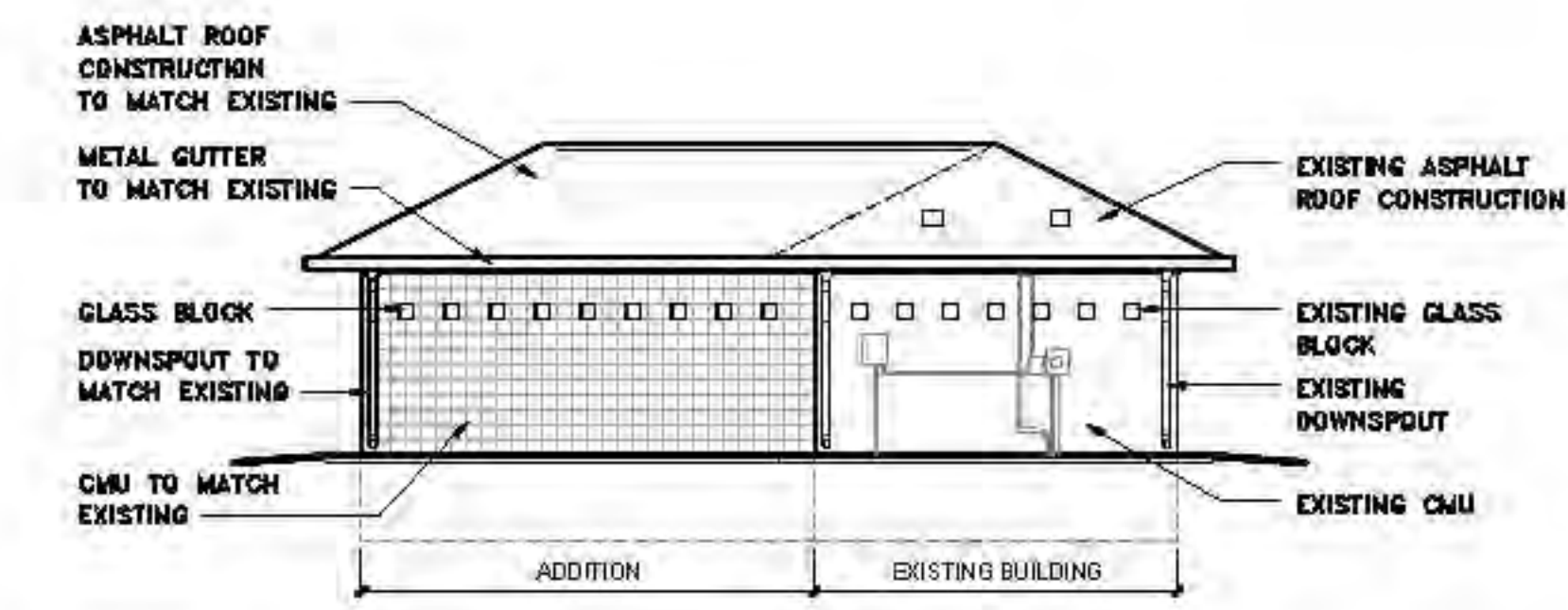
	NORTH		SOUTH		EAST		WEST	
	MATERIAL AREA	% ACTUAL / % ALLOWED	MATERIAL AREA	% ACTUAL / % ALLOWED	MATERIAL AREA	% ACTUAL / % ALLOWED	MATERIAL AREA	% ACTUAL / % ALLOWED
BURNISHED CMU (EXISTING + NEW)	137.34 SF	50% / 0%	288.00 SF	88% / 0%	106.44 SF	88% / 0%	125.00 SF	71% / 0%
ASPHALT SHINGLES	145.00 SF	50% / 25%	150.00 SF	54% / 25%	50.00 SF	32% / 25%	50.00 SF	28% / 25%
	282.34 SF		438.00 SF		156.44 SF		175.00 SF	

FACADE MATERIAL CALCULATION NOTES:

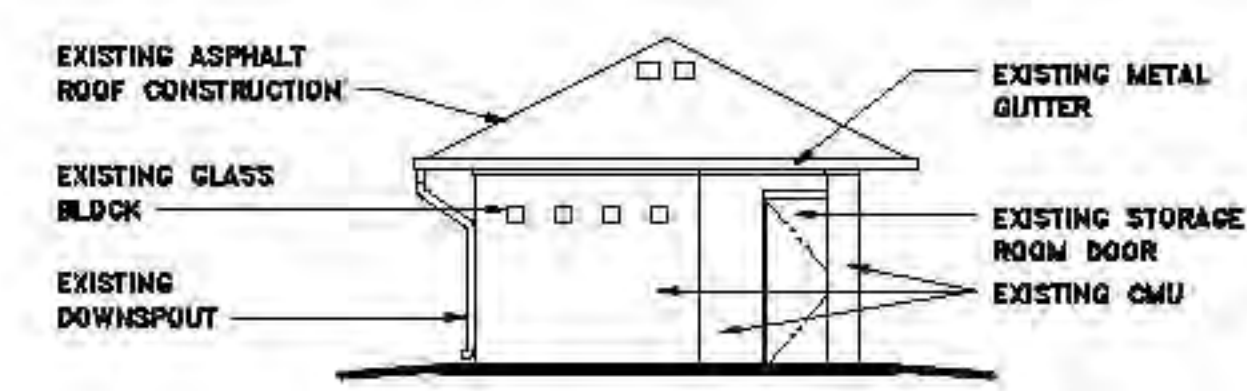
- FOR THE NOVI ZONING ORDINANCE, 5.15 SCHEDULE REGULATING FACADE MATERIALS:
1. ROOF AREAS HAVING SLOPES GREATER THAN 8:12 SHALL BE DISREGARDED FOR FACADE PERCENTAGES.
 2. WINDOW GLASS AND DOORS SHALL BE DEDUCTED FROM FACADE MATERIAL CALCULATIONS AND PERCENTAGES.
 3. THE SUBJECTS DOES NOT INCLUDE PERCENTAGES FOR WORK TERRACES MEASURED ON TOTAL.
 4. THE ADJACENT TOILET ROOM STRUCTURE IS CONSIDERED AS 14" THICK BURNISHED CMU. THE 1/2 SLAB OF THE ASPHALT ROOF IS ESTIMATED BASED ON A FIELD STUDY.



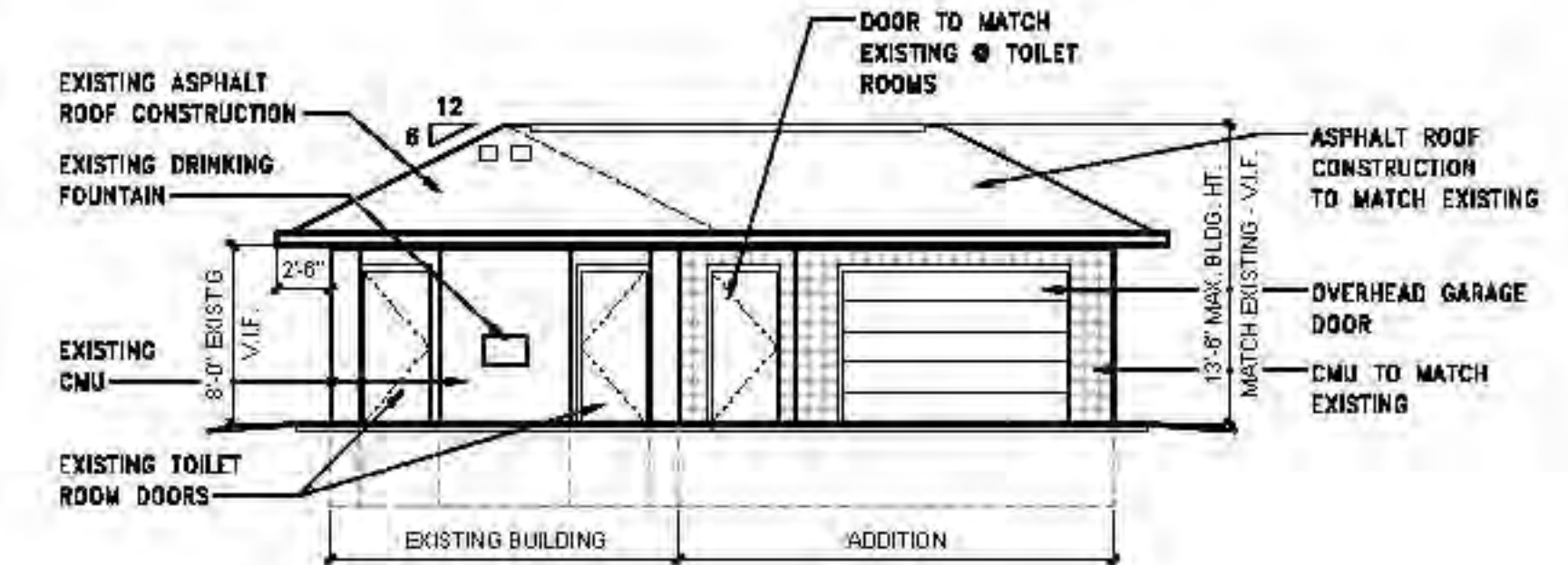
5 GARAGE ADDITION WEST ELEVATION
SPA A-401
1/8" = 1'-0"



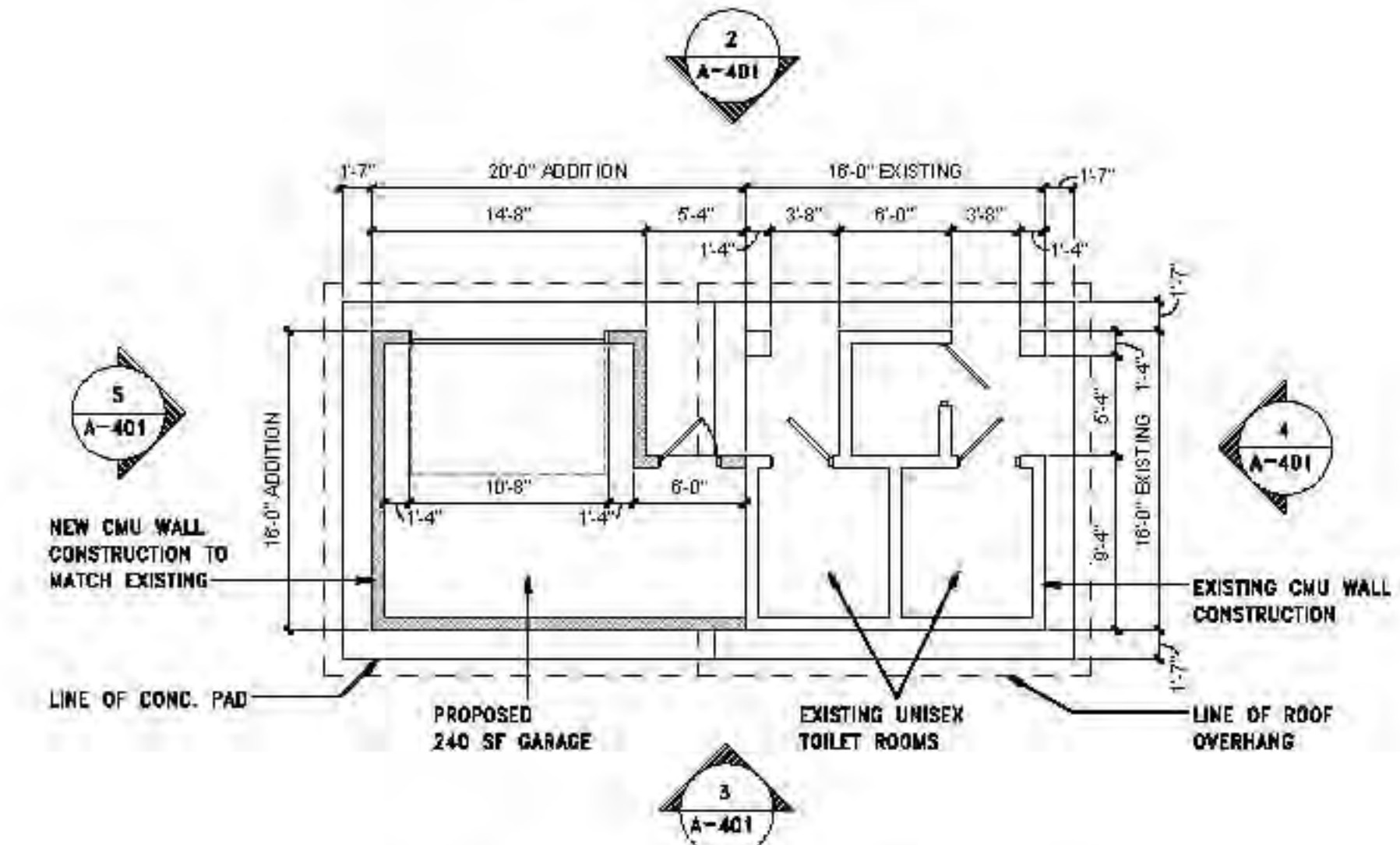
3 GARAGE ADDITION SOUTH ELEVATION
SPA A-401
1/8" = 1'-0"



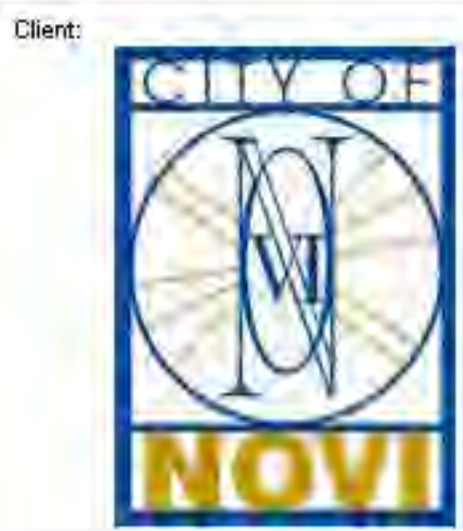
4 GARAGE ADDITION EAST ELEVATION
SPA A-401
1/8" = 1'-0"



2 GARAGE ADDITION NORTH ELEVATION
SPA A-401
1/8" = 1'-0"



1 GARAGE ADDITION FLOOR PLAN
SPA A-401
1/8" = 1'-0"



Client:
Lakeshore Park
Park & Recreation Building
601 South Lake Drive
Novi, MI 48377

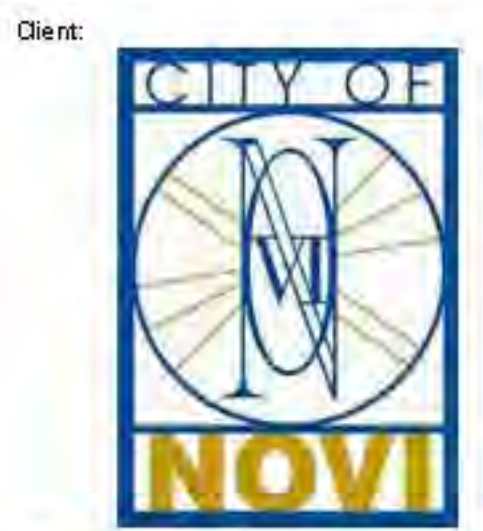
Issued Date: 07-26-2017
Issued for: SITE PLAN APPROVAL

Drawn: DE / JM Designed: DE
Checked: JB Approved: RB
CAD Drawing File: File Name
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Project Number: 216404.00

Sheet Title:
GARAGE ADDITION @ EXISTING TOILET ROOM BUILDING

Sheet Number: SPA A-401



Client:
Lakeshore Park
Park & Recreation Building
601 South Lake Drive
Novi, MI 48377

Project Title:
Lakeshore Park
Park & Recreation Building
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Novi, MI 48377

Issued Date: 07-26-2017
Issued for: SITE PLAN APPROVAL

Drawn: DE/JM Designed: DE

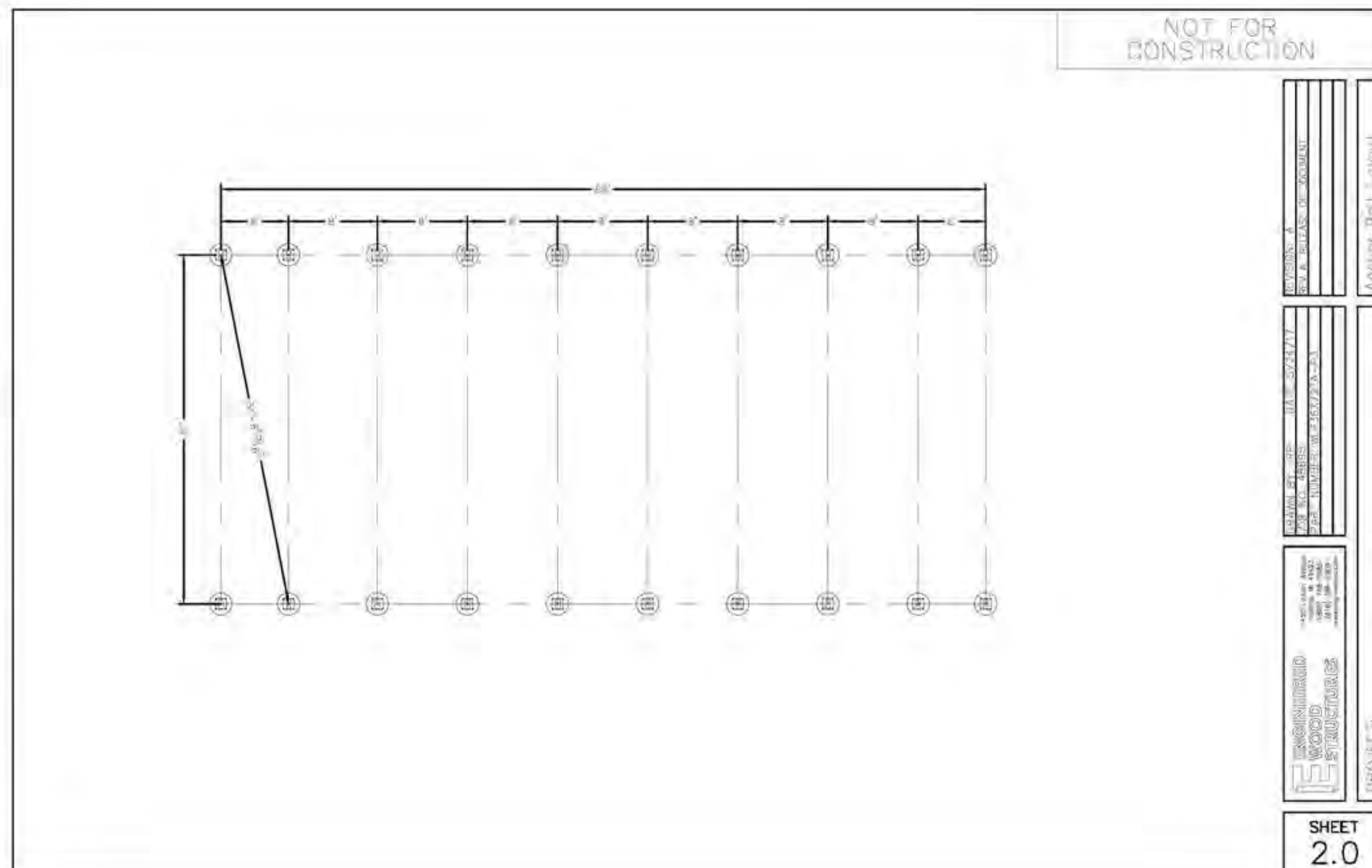
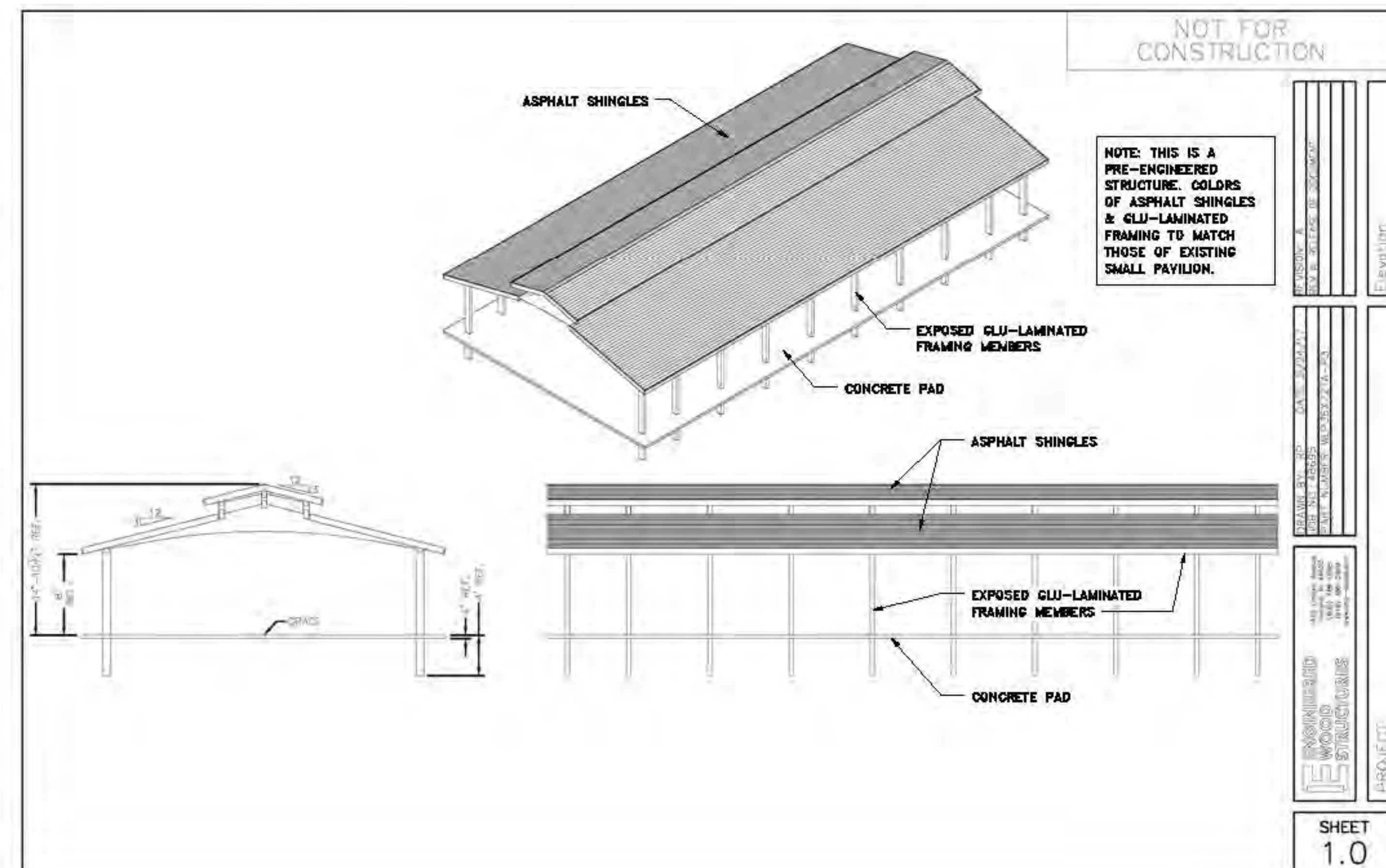
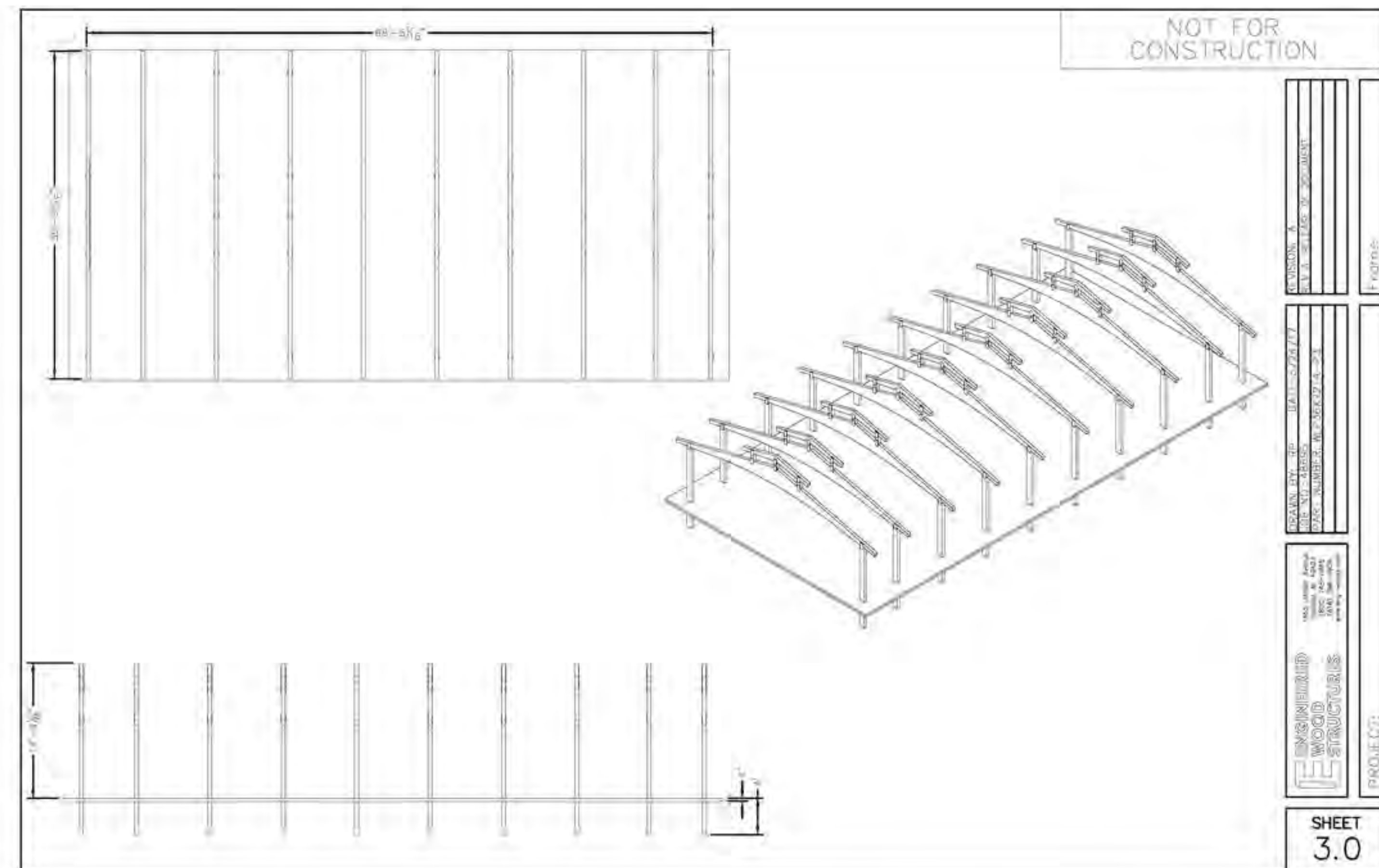
Checked: JB Approved: RB

CAD Drawing File: File Name:
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Project Number: 216404.00

Sheet Title:
PICNIC PAVILION
(DRAWINGS BY OTHERS - ISSUED
HERE FOR REFERENCE ONLY)

Sheet Number: SPA A-501



BENCHMARKS

BM A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87' EAST OF THE BATHROOMS.
ELEV. - 942.69

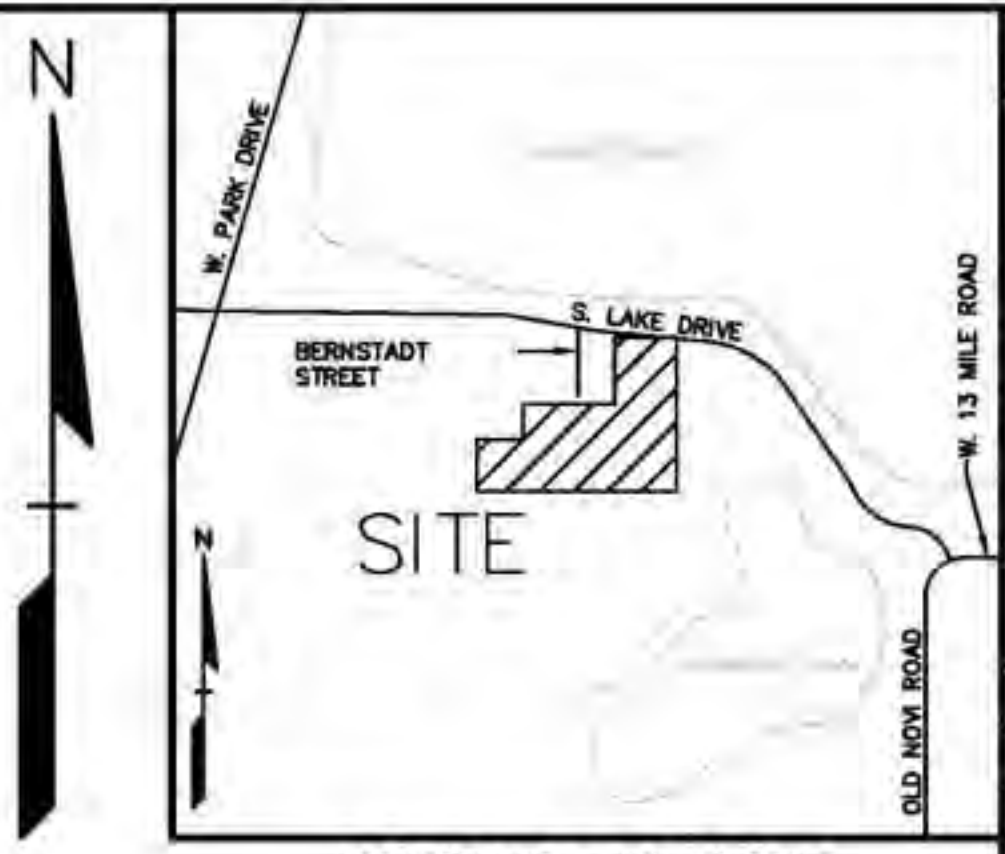
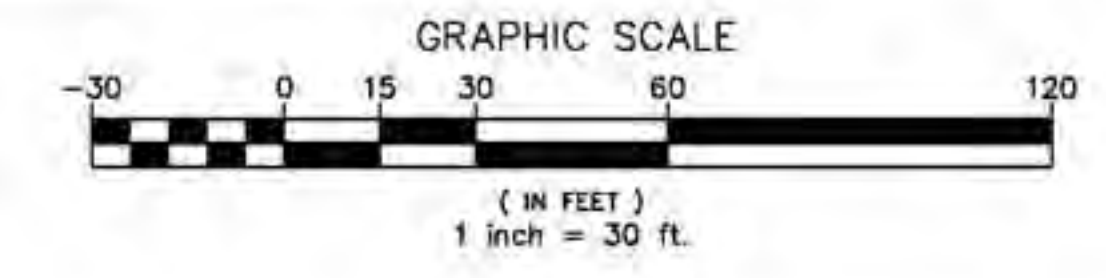
BM B
BOLT IN THE NORTHEAST SIDE OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRAVEL PARKING LOT, APPROX. 57' NORTHEAST OF THE PAVILION.
ELEV. - 943.15

BM C
NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40' WEST OF THE PARK ENTRANCE.
ELEV. - 938.43

GENERAL DEMOLITION NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:

- ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
- ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES.
- STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION.
- SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
- REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, FLOOR SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC.
- REFER TO LANDSCAPE PLANS FOR TREE PROTECTION DETAILS.
- THE CONTRACTOR SHALL, AS A MINIMUM, PROVIDE TREE PROTECTION FENCING AROUND EXISTING TREES TO BE SAVED THAT ARE WITHIN 15' OF CONSTRUCTION ACTIVITIES AND AS INDICATED IN THE PLANS OR PER LOCAL AGENCY REQUIREMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) LATEST EDITION.
- THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION.
- ALL BUILDING GAS LEADS, METERS AND ASSOCIATED EQUIPMENT SHALL BE REMOVED AS SHOWN ON THE PLANS. COORDINATE ALL ASSOCIATED WORK WITH THE APPROPRIATE UTILITY COMPANY.
- REMOVE ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS. COORDINATE SHUTDOWNS AND REMOVALS WITH DETROIT EDISON OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE T.V. SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES.)
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION. SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL NOTIFY MISS DIG, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.



LEGEND

IRON FINDING	BRASS PLUG SET	SEC. CORNER FOUND
IRON SET	MONUMENT SET	RECORDED
NAIL FOUND	MONUMENT SET	MEASURED
NAIL & CAP SET		CALCULATED

LISTING

TELE. PHONE OR CABLE TV DIAL LINE, POLE & 60' WIRE	UNDERGROUND CABLE TV, CABLE FEEDLINE
ELECTRIC 120V, 240V, 480V, 3 PHASE, 3 WIRE	ELECTRIC 120V, 240V, 480V, 3 PHASE, 3 WIRE
GAS MAIN, VALVE & GAS LINE W/SHUT OFF	INTERIOR, 120V, GASE VALVE, TYPING BLEND & VALVE
SANITARY SEWER, CLEANOUT & MANHOLE	COMBINED SEWER & MANHOLE
SEWER, RIGID & BENTONITE (S&B) BOX	POST INDICATOR VALVE
WATER VALVE BOX/FRONT VALVE BOX, SERVICE SHUT OFF	MALICE, TRANSFORMER, PROTECT CONTROL, VALVE
UNDERGROUND STRUCTURE	SPOT ELEVATION
CONCRETE	CONCRETE
ASPHALT	ASPHALT

NOTES:

SEE SHEETS T-1.0 AND T-1.1 FOR LISTS OF TREES PRESERVED AND REMOVED FROM SITE.

DEMOLITION LEGEND:

ITEM TO BE PROTECTED	(Symbol: Circle with cross)
ITEM TO BE REMOVED	(Symbol: Square with X)
CURB/FENCE REMOVAL	(Symbol: Dashed line)
CONCRETE PAVEMENT AND SIDEWALK REMOVAL	(Symbol: Diagonal lines)
AREA OR ITEMS TO BE REMOVED	(Symbol: Horizontal lines)
UTILITY REMOVAL	(Symbol: Dotted line)
ASPHALT REMOVAL	(Symbol: Stippled pattern)
TREE REMOVAL	(Symbol: Circle with X)
SAWCUT LINE	(Symbol: Dashed line with cross-ticks)

LEGAL DESCRIPTION:
(PER CITY OF NOVI TAX RECORDS)

LAND IN THE CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS PART OF THE SOUTH FRACTIONAL 1/2 OF SECTION 3, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

PARCEL 1:
IDLEMERE PARK LOTS 127 TO 141 INCLUSIVE, AS RECORDED IN LIBER 17, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS. 1.80 ACRES.
PARCEL ID: 50-22-03-455-007

PARCEL 2:
THAT PART OF THE SOUTH FRACTIONAL 1/2 OF SEC 3 LYING DIRECTLY SOUTH OF IDLEMERE PARK, SUBDIVISION AS PLATTED IN LIBER 17, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS. 25.80 ACRES.
PARCEL ID: 50-22-03-457-001

PARCEL 3:
THAT PART OF THE SOUTHEAST FRACTIONAL 1/4 OF SEC 3, DESCRIBED AS: BEGINNING AT A POINT DISTANT N 15-30-32 E 11 FT & N 52-14-28 W 200 FT & N 53-02-28 W 80 FT & N 61-13-28 W 170 FT FROM THE NW CORNER OF LOT 30 OF "WALLED LAKE SHORES", THENCE S 17-01-33 W 296.57 FT TO TRAVERSE POINT "1", THENCE S 17-01-33 W 11.26 FT TO THE EASTERLY BANK OF THE CANAL, THENCE ALONG THE SAID BANK OF THE CANAL S 63-00-00 E 28 FT & S 69-03-54 E 50.93 FT & S 43-43-09 E 50.49 FT & S 36-51-27 E 54.94 FT & S 31-00-00 E 36 FT & S 21-15-00 E 30 FT & S 17-20-00 W 292 FT & S 23-45-00 E 18 FT TO THE SHORE LINE OF SHAWOOD LAKE, THENCE ALONG THE SHORE LINE OF SAID LAKE S 45-00-00 W 70 FT & S 64-00-00 E 35 FT & S 04-15-00 E 20 FT & S 23-00-00 W 62 FT & S 37-20-00 W 90 FT & S 11-25-00 W 55 FT & S 37-00-00 E 30 FT & S 25 FT & S 27-32-48 W 78.78 FT TO A POINT ON THE SOUTH SECTION LINE, THENCE S 87-07-34 W 12 FT TO TRAVERSE POINT "5" LOCATED S 80-36-36 E 79.02 FT & S 34-48-40 E 185 FT & S 18-25-10 W 284.02 FT & S 18-25-37 W 425.82 FT FROM SAID TRAVERSE POINT "1", THENCE S 87-07-34 W 25 FT, THENCE N 03-02-23 W 1178.20 FT TO THE SOUTHERLY LINE OF SOUTH LAKE DRIVE, THENCE ALONG THE SOUTHERLY LINE OF SAID ROAD S 71-18-23 E 224.78 FT TO THE POINT OF BEGINNING. 4.27 ACRES.
PARCEL ID: 50-22-03-477-001

REVISIONS

NO.	BY	DATE	DESCRIPTION

CAUTION!

There is a 30" deep utility trench located under the existing concrete sidewalk on the east side of the site. The trench contains a 12" diameter pipe. The trench is approximately 100 feet long and runs parallel to the sidewalk. The trench is to be removed as part of the demolition work. The contractor shall be responsible for protecting the trench during construction activities.

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12071 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

DEMOLITION PLAN

NOVI LAKESHORE PARK

PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: BK, DN, BK, SUR, P.M.
CDS: BK, DN, BK, SUR, P.M.

ORIGINAL ISSUE DATE: JUNE 30, 2017

PEA JOB NO: 2016-308

SCALE: 1" = 30'

DRAWING NUMBER: C-2.0

BENCHMARKS

BM A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87'± EAST OF THE BATHROOMS.
ELEV. - 942.69

BM B
BOLT IN THE NORTHEAST SIDE OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRVEL PARKING LOT, APPROX. 57'± NORTHEAST OF THE PAVILION.
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BM C
NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40'± WEST OF THE PARK ENTRANCE.
ELEV. - 938.43

FLOODPLAIN:
(Per Flood Insurance Rate Map Number 26125C0488F, Effective Date September 29, 2006)

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE AE - Base Flood Elevations determined.

OTHER AREAS
ZONE X - Area to be determined outside of the 0.2% annual chance floodplain.

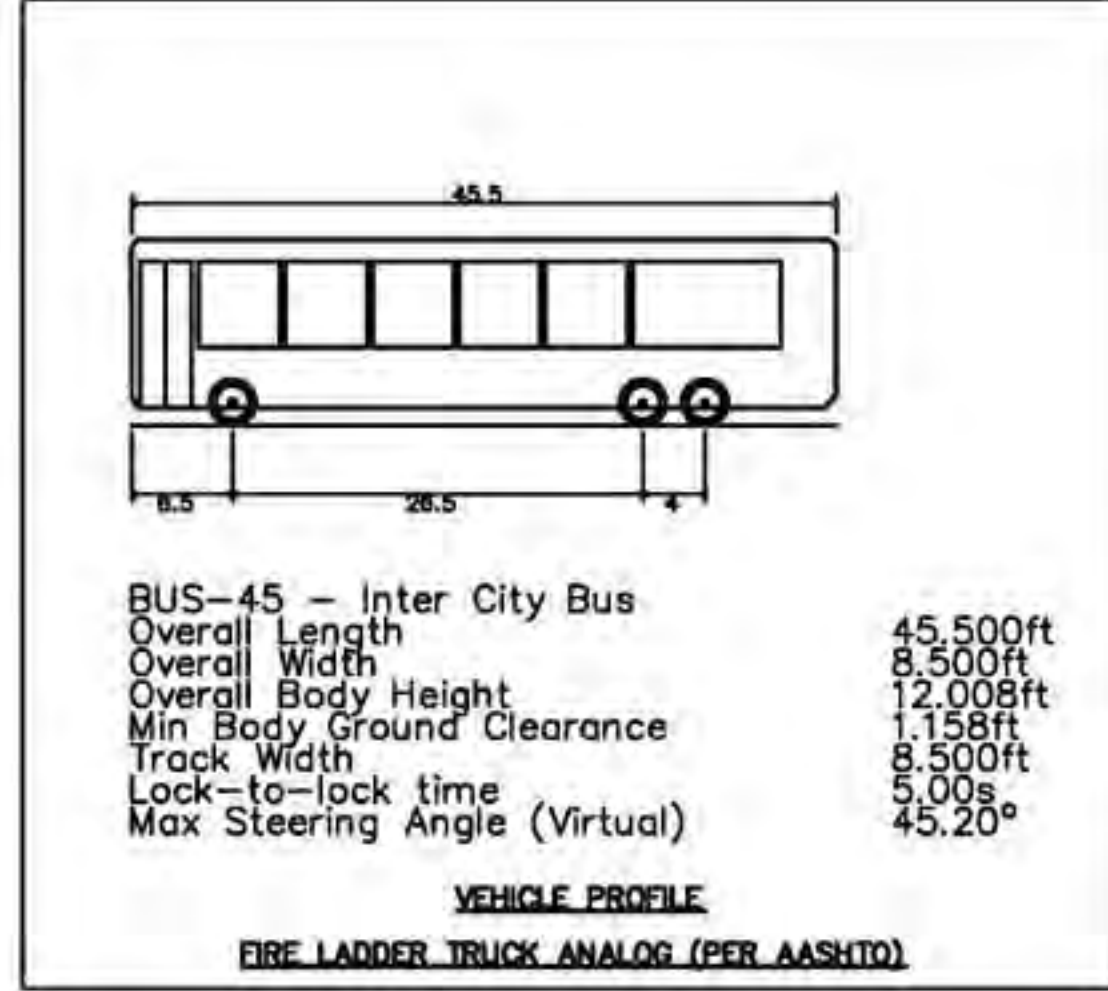
LEGAL DESCRIPTION:
(PER CITY OF NOV TAX RECORDS)

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PARCEL ID: 50-22-03-455-007

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PARCEL ID: 50-22-03-477-001



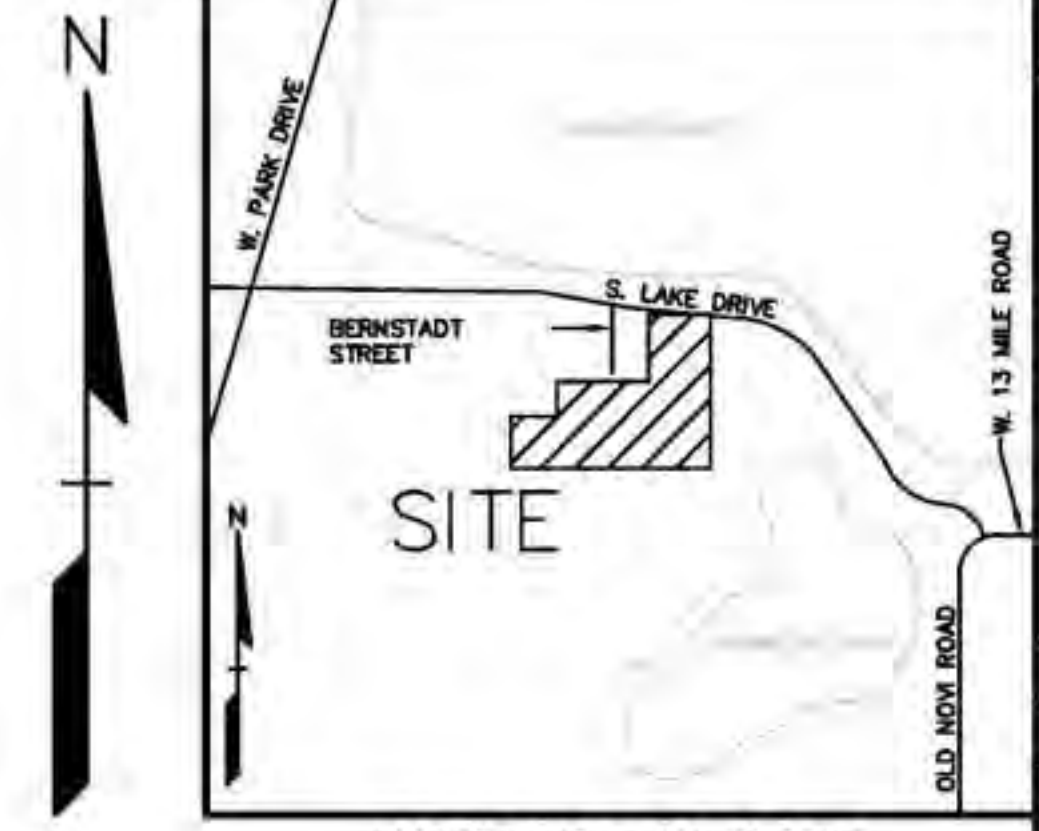
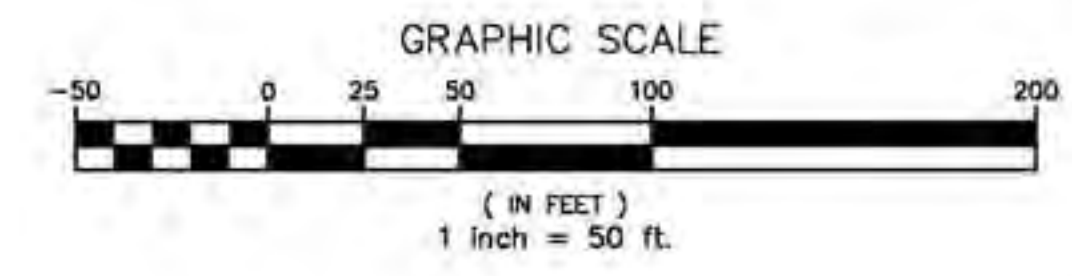
CITY OF NOV FIRE DEPARTMENT NOTES:

- ALL WEATHER ACCESS ROADS CAPABLE OF SUPPORTING 35 TONS ARE TO BE PROVIDED FOR FIRE APPARATUS PRIOR TO CONSTRUCTION ABOVE THE FOUNDATION.
- ALL WATER MAINS AND FIRE HYDRANTS ARE TO BE INSTALLED AND BE IN SERVICE PRIOR TO CONSTRUCTION ABOVE THE FOUNDATION.
- THE BUILDING ADDRESS IS TO BE POSTED FACING THE STREET THROUGHOUT THE CONSTRUCTION. THE ADDRESS IS TO BE AT LEAST 3 INCHES HIGH ON CONTRASTING BACKGROUND.

IMPERVIOUS AREA:
BUILDING FOOTPRINT AREA = 12,505 SQ.FT.
GRASS/LANDSCAPE AREA = 1,254,444 SQ.FT.
PAVEMENT AREA = 121,308 SQ.FT.
TOTAL PARCEL AREA (31.87 Ac) = 1,388,257 SQ.FT.

GENERAL NOTES:
THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NOV CURRENT STANDARDS AND REGULATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAYS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGUN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND /OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.
- PROVIDE 4" BLUE STRIPING FOR BARRIER FREE PARKING SPACES AND WHITE FOR BARRIER FREE PARKING SYMBOL. NOTE THAT WHERE A BARRIER FREE PARKING SPACE ADJUTS A NON-BARRIER FREE SPACE, THE TWO SPACES SHALL BE SEPARATED BY ABUTTING BLUE AND WHITE STRIPES.
- SIGNS NOTED TO BE MOUNTED ON BUILDING FACADE SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET AND A MAXIMUM MOUNTING HEIGHT OF 7 FEET.



SITE DATA TABLE:

SITE AREA: 31.87 ACRES GROSS
ZONING: R4, SINGLE FAMILY RESIDENTIAL
PARCEL ID: 50-22-03-457-001 (25.80 ACRES ±)
50-22-03-455-007 (1.80 ACRES ±)
50-22-03-477-001 (4.27 ACRES ±)

PROPOSED USE: PARK WITH COMMUNITY CENTER

BUILDING INFORMATION:
MAXIMUM ALLOWABLE BUILDING HEIGHT = 35 FEET (2.5 STORIES)
PROPOSED BUILDING HEIGHT = 25 FEET

BUILDING FOOTPRINT AREA:

COMMUNITY CENTER:	9,400 SF
LARGE PICNIC PAVILION:	2,448 SF
SMALL PICNIC PAVILION:	656 SF
TOTAL:	12,505 SF

BUILDING LOT COVERAGE = 0.96%

PLANNED OCCUPANCY:

COMMUNITY CENTER:	150 PERSONS
LARGE PAVILION:	60 PERSONS
SMALL PAVILION:	36 PERSONS
TOTAL:	246 PERSONS

SETBACK REQUIREMENTS:

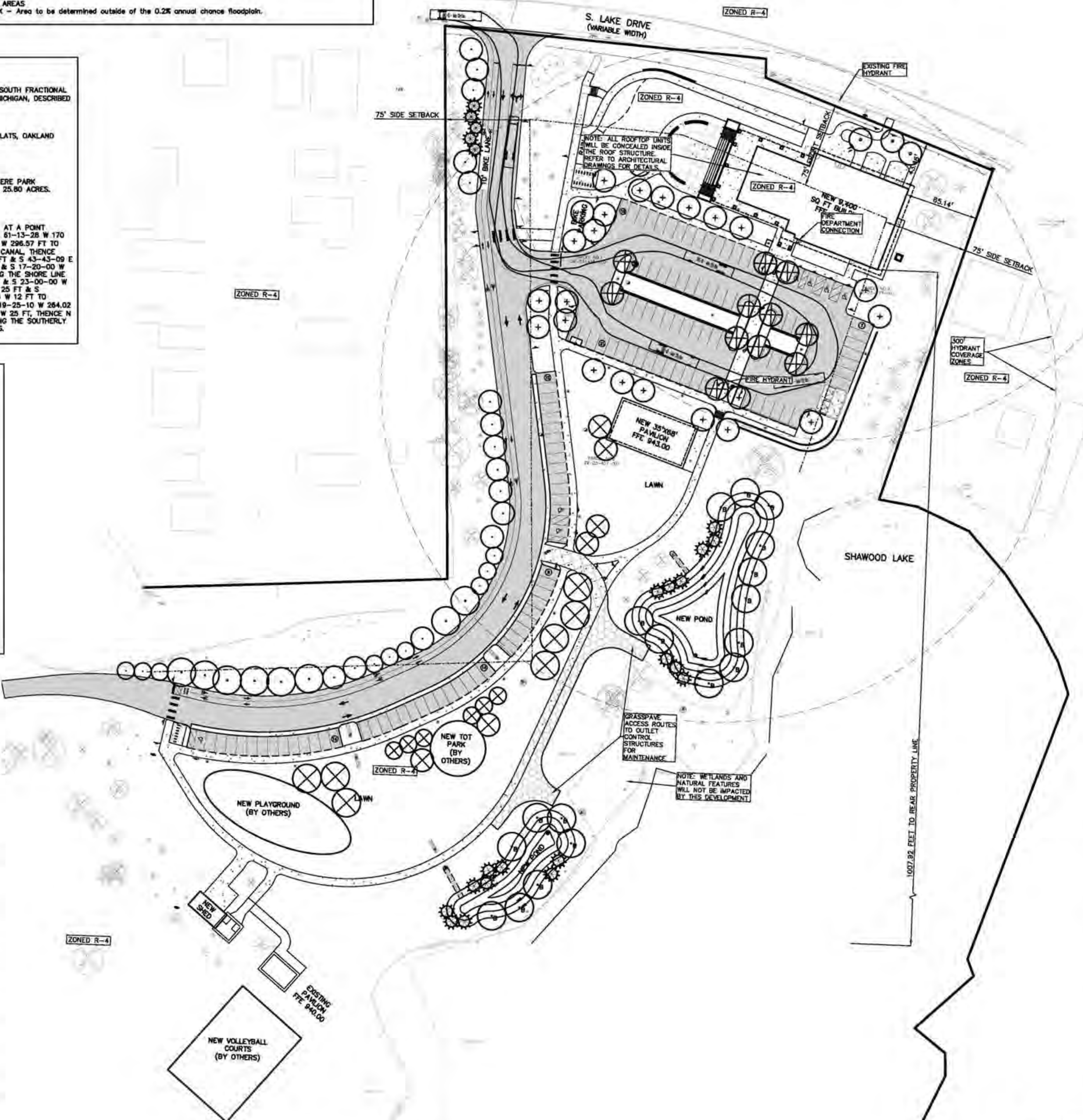
R4 ZONING DISTRICT:	
FRONT SETBACK (NORTH):	75 FEET REQUIRED 43.5' PROVIDED
SIDE SETBACK (EAST):	75 FEET REQUIRED 65' PROVIDED
SIDE SETBACK (WEST):	75 FEET REQUIRED 268' PROVIDED
SIDE SETBACK (SOUTH):	75 FEET REQUIRED 1007.98' PROVIDED
PARKING SETBACK:	25 FEET REQUIRED 135' PROVIDED

PARKING CALCULATIONS:
PRIVATE CLUB OR LODGE HALL = 1 SPACE PER EVERY 3 PERSONS
TOTAL PARKING REQUIRED = 246 / 3 = 82 SPACES

TOTAL EXISTING SPACES REMOVED = 90 SPACES INC. 4 H/C SPACES
TOTAL PROPOSED PARKING SPACES = 129 SPACES INC. 7 H/C SPACES
BICYCLE PARKING REQUIRED = 10% OF TOTAL CAR SPACES = 13 SPACES
BICYCLE PARKING PROVIDED = 50 SPACES

SITE SOILS INFORMATION:
ACCORDING TO THE USDA NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY FOR OAKLAND COUNTY, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:

- 100 - MARLETTE LOAM, 12 TO 18 PERCENT SLOPES
- 118 - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES
- 138 - OSHTEMO-BOYER LOAMY SANDS, 0 TO 8 PERCENT SLOPES
- 13C - OSHTEMO-BOYER LOAMY SANDS, 8 TO 12 PERCENT SLOPES
- 13E - OSHTEMO-BOYER LOAMY SANDS, 12 TO 40 PERCENT SLOPES
- 189 - FOX SANDY LOAM, TILL PLAIN, 2 TO 8 PERCENT SLOPES
- 27 - HOUGHTON AND ADRIAN MUDS
- 40A - UDORTHENTS, LOAMY, NEARLY LEVEL
- 40C - UDORTHENTS, LOAMY, ROLLING
- 41B - AQUENTS, SANDY, LOAMY UNCONSOLIDATING
- 54A - MATHERTON SANDY LOAM, 0 TO 3 PERCENT SLOPES
- W - WATER



REVISIONS

NO.	DATE	DESCRIPTION
1	07-25-17	PRELIMINARY SUBMITTAL
2	08-15-17	FINAL SUBMITTAL
3	08-15-17	FOR PERMITS

CAUTION!
This plan was prepared by PEAX, Inc. and is not to be used for any other project without the written consent of PEAX, Inc. The user of this plan assumes all liability for any and all damages, including consequential damages, arising from the use of this plan. PEAX, Inc. is not responsible for any errors or omissions in this plan. The user of this plan is advised that the information contained herein is for informational purposes only and does not constitute a contract. The user of this plan is advised that the information contained herein is for informational purposes only and does not constitute a contract. The user of this plan is advised that the information contained herein is for informational purposes only and does not constitute a contract.

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NSA ARCHITECTS, ENGINEERS, PLANNERS
22071 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

OVERALL PLAN
NOVI LAKESHORE PARK
PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E.,
CITY OF NOV, OAKLAND COUNTY, MICHIGAN

ORIGINAL ISSUE DATE:
JUNE 30, 2017

PEA JOB NO: 2016-308

SCALE: 1" = 50'

DRAWING NUMBER:
C-3.0

NOT FOR CONSTRUCTION

BENCHMARKS

BM A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87'± EAST OF THE BATHROOMS.
ELEV. - 942.69

BM B
BOLT IN THE NORTHEAST CORNER OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRavel PARKING LOT, APPROX. 57'± NORTHEAST OF THE PAVILION
ELEV. - 943.15

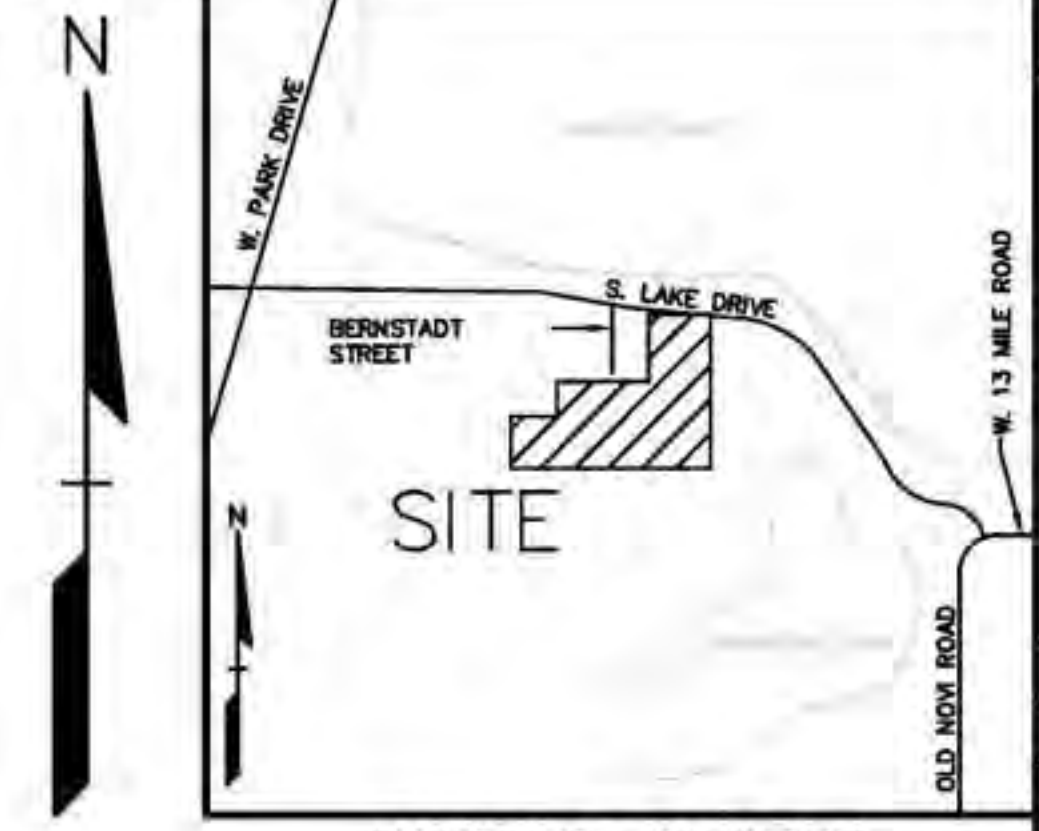
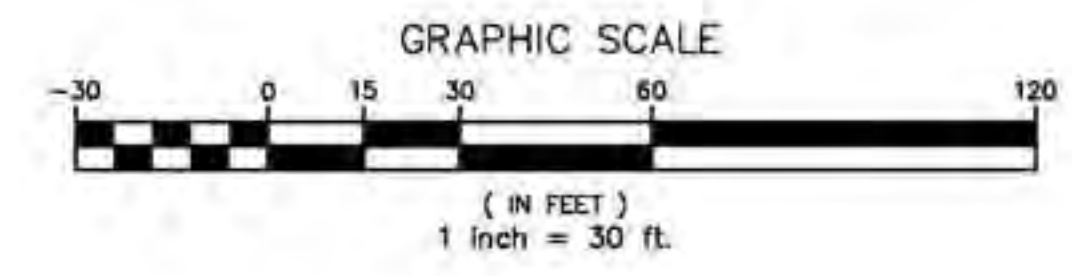
BM C
NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40'± WEST OF THE PARK ENTRANCE
ELEV. - 938.43

FLOODPLAIN:
(Per Flood Insurance Rate Map Number 2612500488F, Effective Date September 29, 2006)

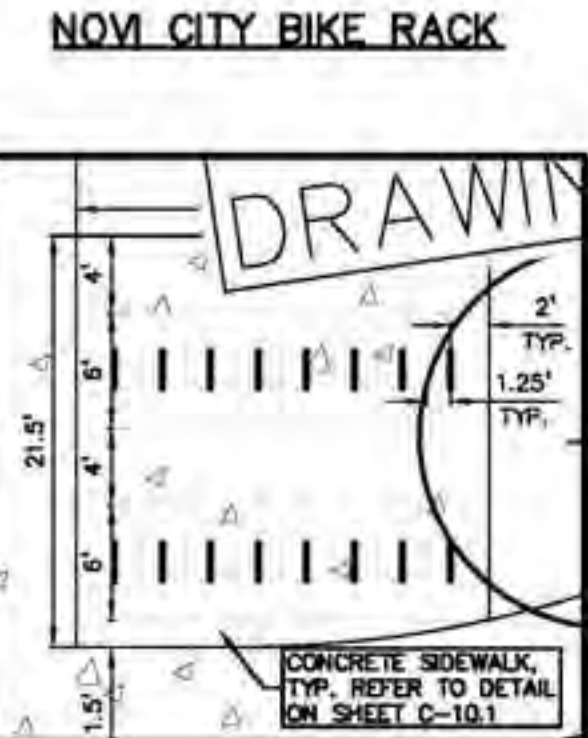
BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE AE - Base Flood Elevations determined.

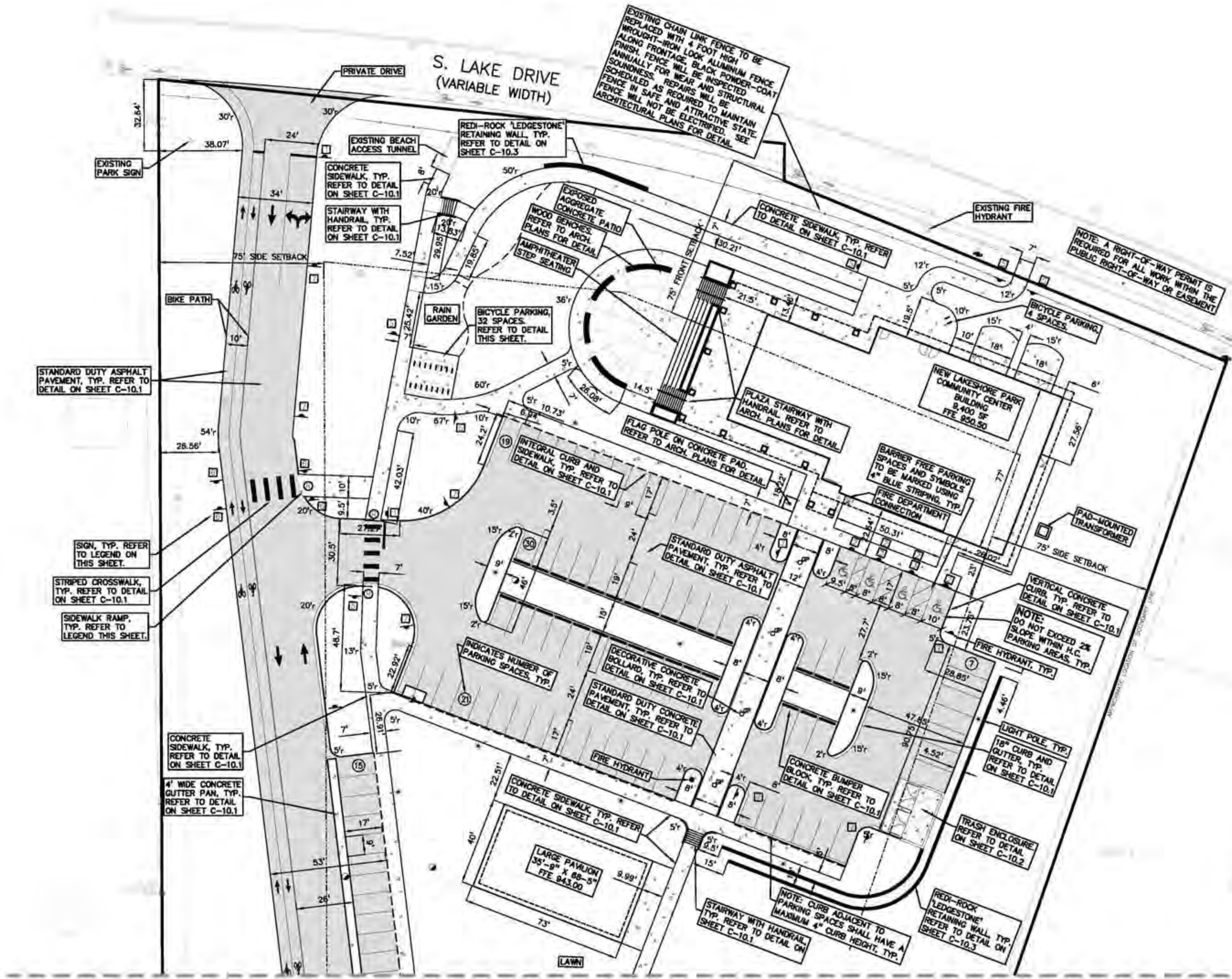
OTHER AREAS
ZONE X - Area to be determined outside of the 0.2% annual chance floodplain.



NO.	DATE	DESCRIPTION	BY
1	07-25-17	PRELIMINARY SUBMITTAL	SS
2	08-01-17	SITE PLAN APPROVAL	SS
3	08-01-17	PERMITS SUBMITTAL	SS
4	08-01-17	FINAL REGISTRATION	SS



BICYCLE PARKING DETAIL
SCALE: 1" = 10'



LEGEND

EXISTING:

- IRON FENCE
- IRON SET
- NAIL FOUND
- NAIL & CAP SET
- BRASS PLUG SET
- MONUMENT FOUND
- RECORDED
- MEASURED
- CALCULATED

UTILITIES:

- ELEC. POLE OR CABLE TV OIL LINE, POLE & GUY WIRE
- UNDERGROUND CABLE TV, GUY PEDESTAL
- TELEPHONE U.S. CABLE, FIBERGLASS & MANHOLE
- ELECTRIC U.S. CABLE, MANHOLE, METER & METER BOX
- GAS MAIN, VALVE & GAS LINE MANHOLE
- WATERMAIN, IRI, GATE VALVE, TAPPING SLEEVE & VALVE
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- SEWER, ROOF & RETIVE CATCH BASIN
- POSS INDICATOR VALVE
- METER WALK BOX/HORIZONTAL VALVE BOX, SPACE SHOT/OT
- MALICE, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE
- SPOT ELEVATION
- CORNER LINE
- FENCE
- SHRUB PAL
- SHEET LIGHT
- SON
- CONCRETE
- ASPHALT

CONSTRUCTION:

- TO HEAVY RAKE DUTY
- TO HEAVY DEEP DUTY

SIGN LEGEND:

24"x24" "STOP" SIGN (R1-1)	2 EA.
"BARRIER FREE PARKING" SIGN (R7-B)	7 EA.
"VAN ACCESSIBLE" SIGN (R7-BP)	4 EA.
"PATH ENDS" AND "ROAD NARROWS" SIGNS	1 EA.
"NO BICYCLES" AND "PEDESTRIANS ONLY" SIGNS	8 EA.
"CROSSWALK" SIGNS (W11-2 & W16-7P)	8 EA.
"NO PARKING FIRE LANE" SIGN (LR7-22)	8 EA.

REFER TO SHEET C-10.1 FOR SIGN DETAILS.
SIGN TOTALS ARE TOTAL QUANTITIES NEEDED FOR ENTIRE SITE.

SIDEWALK RAMP LEGEND:
SIDEWALK RAMP "TYPE R"
REFER TO LATEST M.D.O.T. R-28 STANDARD RAMP.
NO DETECTABLE WARNING REQUIRED ON THIS SITE.

GENERAL NOTES:

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- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND/OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.
- PROVIDE 4" BLUE STRIPING FOR BARRIER FREE PARKING SPACES AND WHITE FOR BARRIER FREE PARKING SYMBOL. NOTE THAT WHERE A BARRIER FREE PARKING SPACE ADJUTS A NON-BARRIER FREE SPACE, THE TWO SPACES SHALL BE SEPARATED BY ADJUTING BLUE AND WHITE STRIPES.
- SIGNS NOTED TO BE MOUNTED ON BUILDING FACADE SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET AND A MAXIMUM MOUNTING HEIGHT OF 7 FEET.

CAUTION!
This drawing is not to be used for construction without the approval of the Designer. The Designer is not responsible for any errors or omissions in this drawing. The Designer is not responsible for any construction that is not in accordance with this drawing. The Designer is not responsible for any construction that is not in accordance with the applicable laws and regulations. The Designer is not responsible for any construction that is not in accordance with the applicable laws and regulations.

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25201 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

SITE PLAN-NORTH
NOVI LAKESHORE PARK
PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E.
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: BK DN BK SUR P.M. SS
DATE: 06/30/17

ORIGINAL ISSUE DATE: JUNE 30, 2017

PEA JOB NO. 2016-308

SCALE: 1" = 30'

DRAWING NUMBER: **C-3.1**

NOT FOR CONSTRUCTION

BENCHMARKS

BM A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87'± EAST OF THE BATHROOMS.
ELEV. - 942.69

BM B
BOLT IN THE NORTHEAST SIDE OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRANL PARKING LOT, APPROX. 57'± NORTHEAST OF THE PAVILION.
ELEV. - 943.15

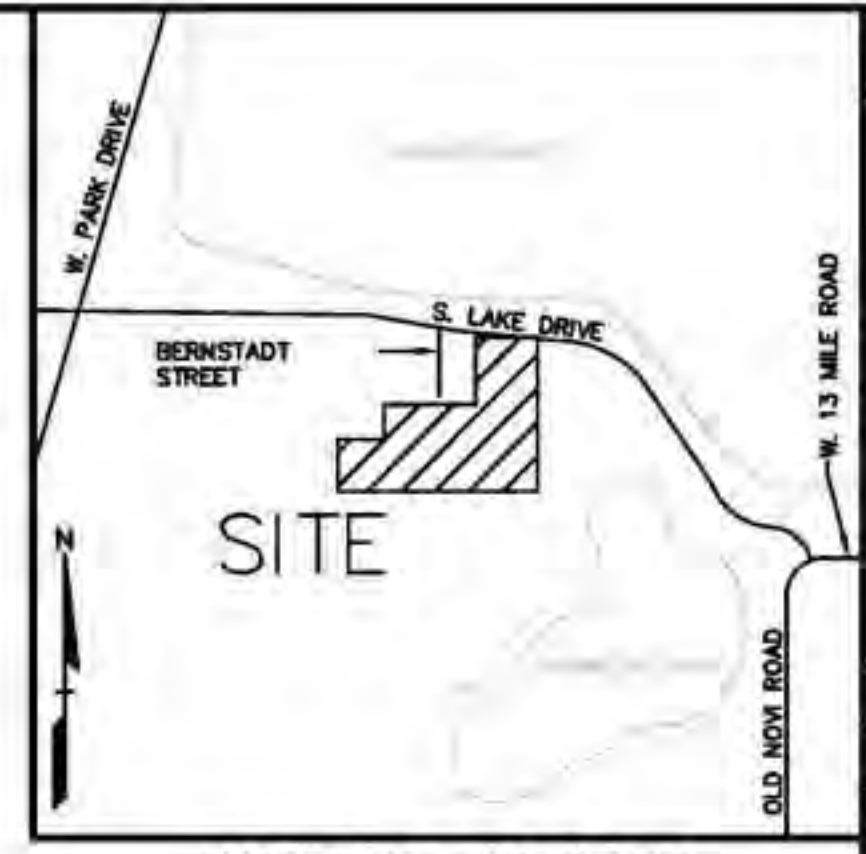
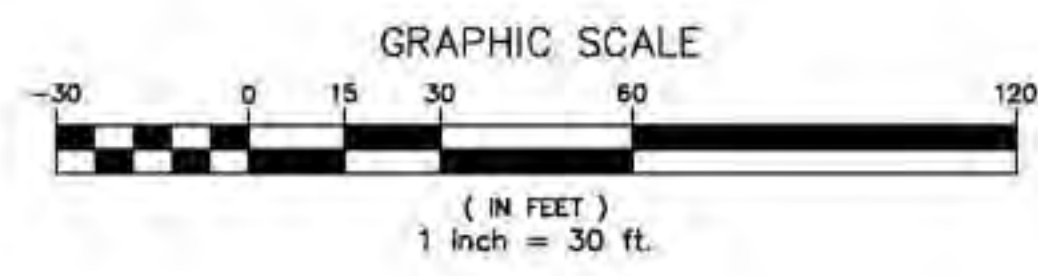
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NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40'± WEST OF THE PARK ENTRANCE.
ELEV. - 938.43

FLOODPLAIN:
(Per Flood Insurance Rate Map Number 28125C0488F, Effective Date September 29, 2006)

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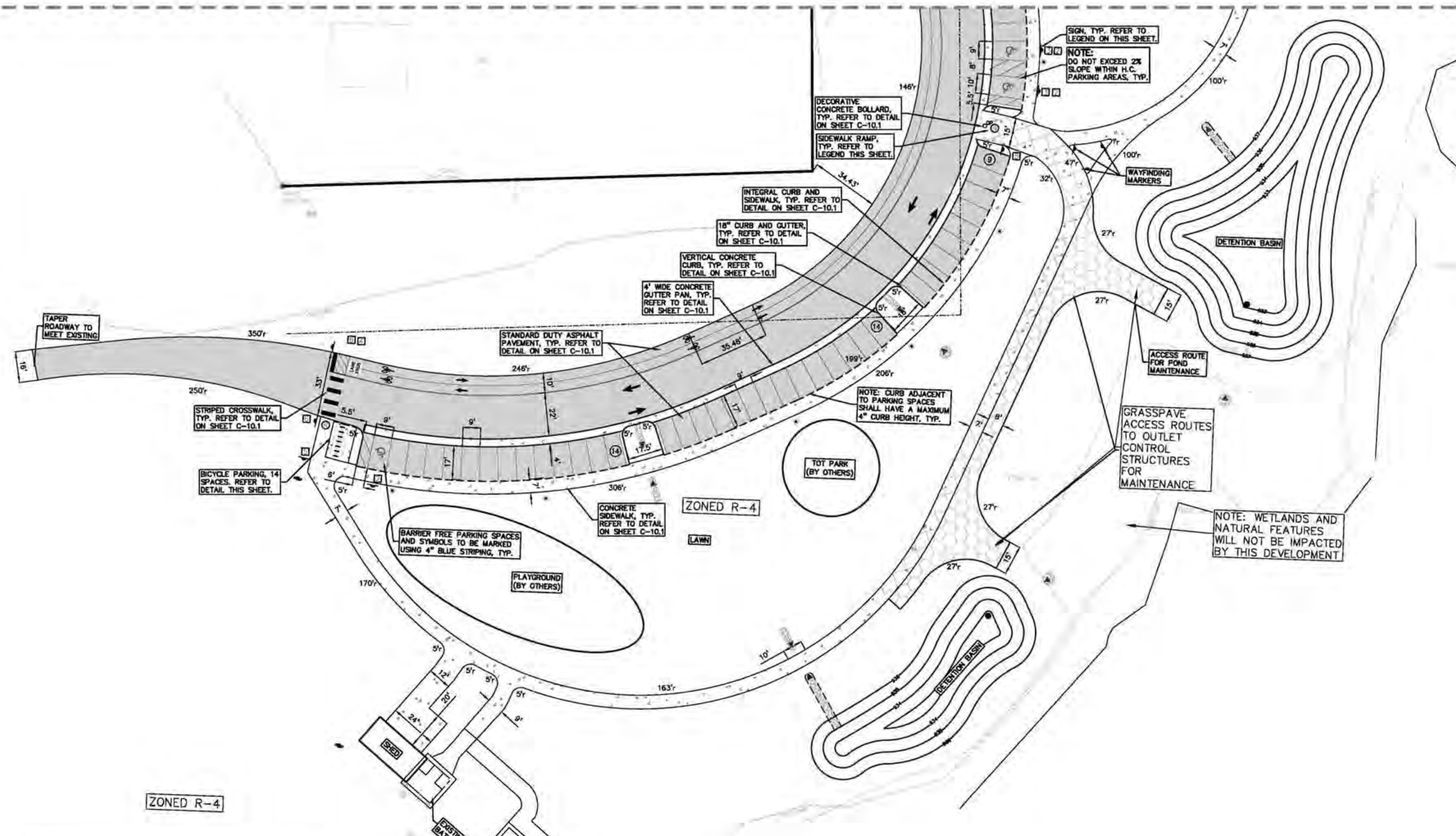
ZONE AE - Base Flood Elevations determined.

OTHER AREAS
ZONE X - Area to be determined outside of the 0.2% annual chance floodplain.



NO.	DATE	DESCRIPTION
1	07-25-17	PRELIMINARY SUBMITTAL
2	08-01-17	SITE PLAN APPROVAL
3	08-01-17	PERMITS LOCATION SUBMITTAL
4	08-01-17	PERMITS LOCATION SUBMITTAL
5	08-01-17	PERMITS LOCATION SUBMITTAL

REVISIONS



LEGEND

<ul style="list-style-type: none"> IRON FOUND IRON SET NAIL FOUND NAIL & CAP SET 	<ul style="list-style-type: none"> BRASS PLUG SET MONUMENT SET SEC. CORNER FOUND RECORDED MEASURED CALCULATED
--	---

SYMBOLS

- ELEC. PHONE OR CABLE TV G/L LINE, POLE & BUY WIRE
- UNDERGROUND CABLE TV, CABLE PEDESTAL
- TELEPHONE G/L CABLE, PEDESTAL & MANHOLE
- ELECTRIC G/L CABLE, MANHOLE, METE & SHEDDLE
- GAS MAIN, VALVE & GAS LINE MARKER
- WATERMAIN, (ING. GATE VALVE, TAPPING SLEEVE & VALVE)
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- SEWER, POND & BENTON CATCH BASIN
- POSS. INVERTER VALVE
- WATER VALVE BOX/PORTANT VALVE BOX, SERVICE SHED/ST
- MALICE, TRANSFORMER, REGULATION CONTROL, VALVE
- UNIDENTIFIED STRUCTURE

SPOT ELEVATION

CONTOUR LINE

FINISH

SHOULDER

STREET LIGHT

SOIL

CONCRETE

ASPHALT

CAUTION!

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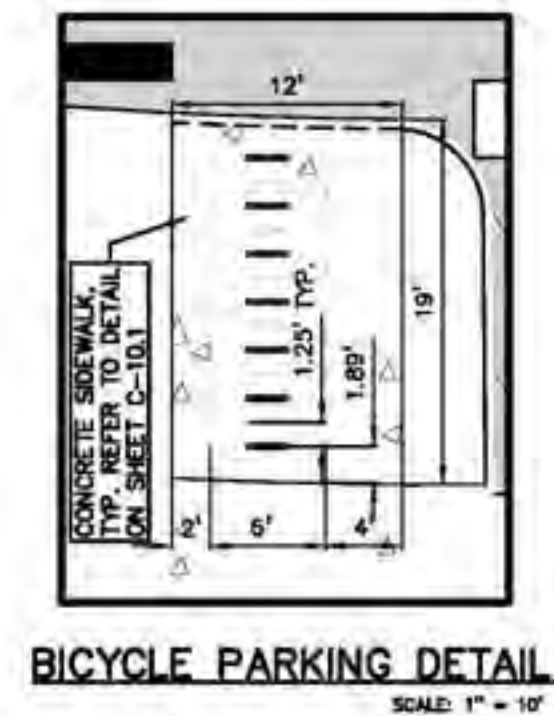


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GENERAL NOTES:

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BICYCLE PARKING DETAIL
SCALE: 1" = 10'

NOT FOR CONSTRUCTION

NSA ARCHITECTS, ENGINEERS, PLANNERS
22001 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

SITE PLAN - SOUTH
NOVI LAKESHORE PARK
PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E.
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: BK, DN, BK, SUR, P.M.
DWS: BK, DN, BK, SUR, P.M.

ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO: 2016-308
SCALE: 1" = 30'
DRAWING NUMBER: C-3.2

BENCHMARKS

BM #A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87' EAST OF THE BATHROOMS.
ELEV. - 942.69

BM #B
BOLT IN THE NORTHEAST SIDE OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRANUL. PARKING LOT, APPROX. 57' NORTHEAST OF THE PAVILION
ELEV. - 943.15

BM #C
NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40' WEST OF THE PARK ENTRANCE
ELEV. - 938.43

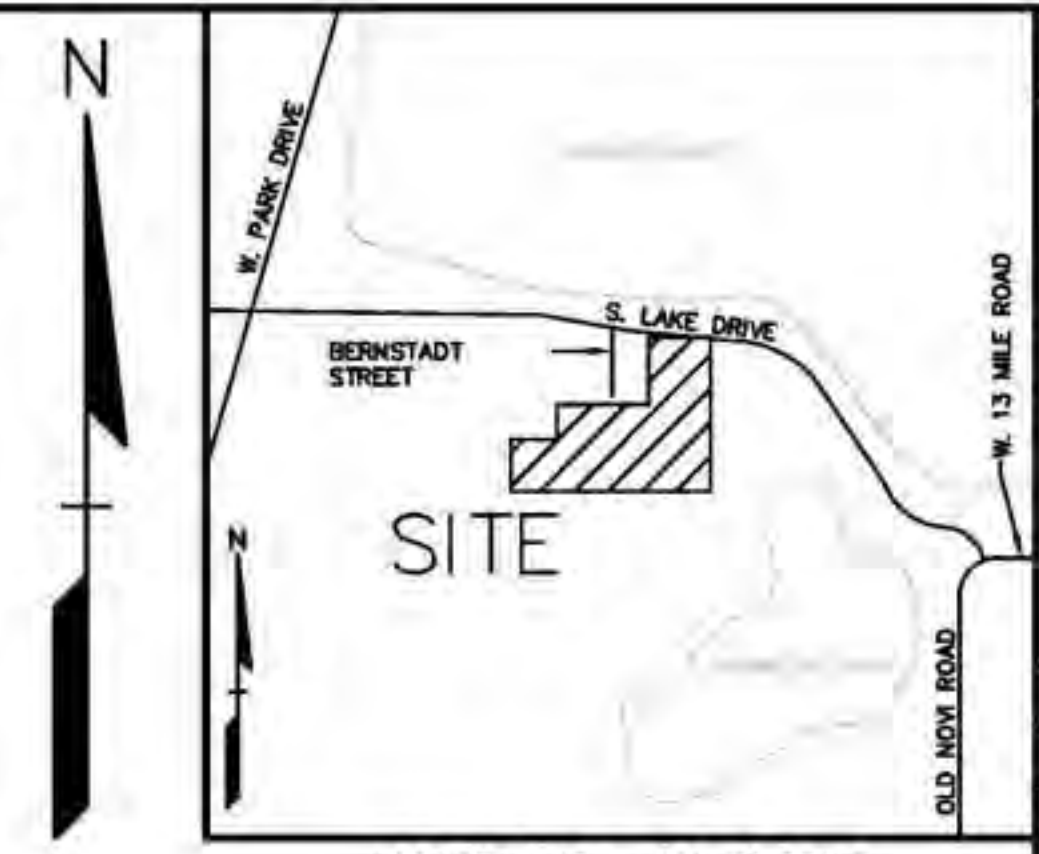
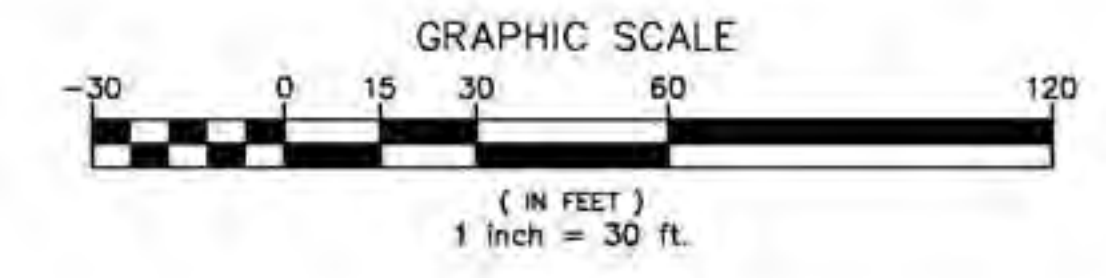
FLOODPLAIN:
(Per Flood Insurance Rate Map Number 28125C0488F, Effective Date September 29, 2006)

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

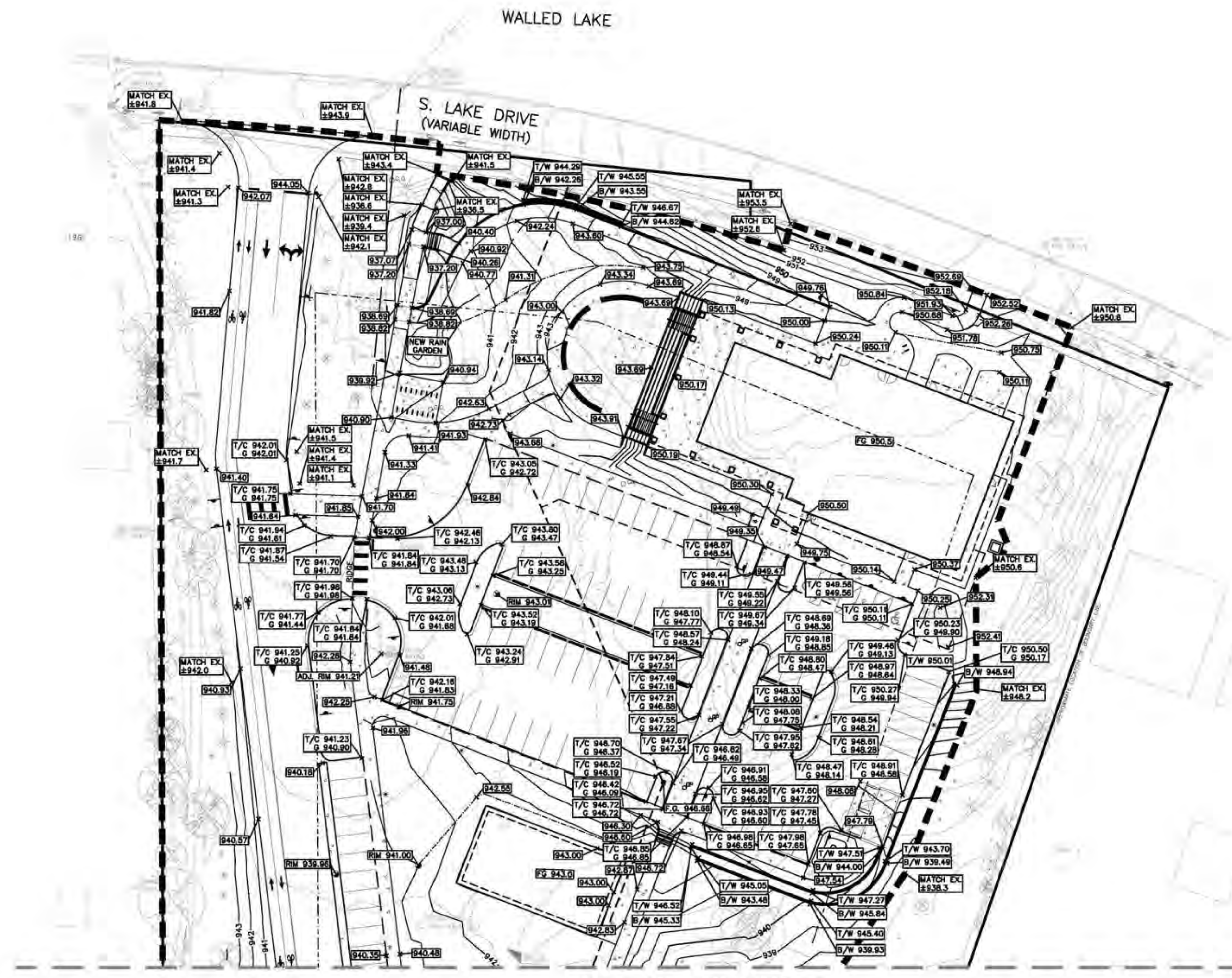
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ZONE AE - Base Flood Elevations determined.

OTHER AREAS
ZONE X - Area to be determined outside of the 0.2% annual chance floodplain.



NO.	DATE	DESCRIPTION	BY
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2	07/20/2017	ISSUE FOR PERMITS	SS
3	08/01/2017	ISSUE FOR PERMITS	SS
4	08/01/2017	ISSUE FOR PERMITS	SS
5	08/01/2017	ISSUE FOR PERMITS	SS
6	08/01/2017	ISSUE FOR PERMITS	SS
7	08/01/2017	ISSUE FOR PERMITS	SS
8	08/01/2017	ISSUE FOR PERMITS	SS
9	08/01/2017	ISSUE FOR PERMITS	SS
10	08/01/2017	ISSUE FOR PERMITS	SS



LEGEND

EXISTING:

- IRON FOUND
- BRASS PLUG SET
- MONUMENT FOUND
- RECORDED
- HEALED
- CALCULATED

PROPOSED:

- TELE. PHONE OR CABLE TV G/L LINE, POLE & BUY WIRE
- UNDERGROUND CABLE TV, GUY PEDESTAL
- TELEPHONE G/L CABLE, FIBER, & BUNDLE
- ELECTRIC G/L CABLE, METER & METER BOX
- GAS MAIN, VALVE & GAS LINE MARKER
- WATERMAIN, (ING. GATE VALVE, TAPPING SLEEVE & VALVE)
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- SEWER, RISK & RISKY CHUTE (SINK)
- POSS. HIDDEN VALVE
- WATER VALVE BOX/FRONT VALVE BOX, SERVICE SHUTOFF
- MALICE, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE
- SPOT ELEVATION
- CONCRETE
- ASPHALT

SYMBOLS: GRADING

PROPOSED SPOT GRADE ELEVATION. ALL GRADES INDICATED ARE TOP OF PAVEMENT UNLESS OTHERWISE NOTED.

PROPOSED CONTOUR LINE

EARTHWORK BALANCING NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

GENERAL GRADING AND EARTHWORK NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

- CONTRACTOR TO FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
- ALL GRADES ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
- THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE CITY OF NOVI AND OAKLAND COUNTY. AN EROSION CONTROL PERMIT MUST BE SECURED FROM THE CITY PRIOR TO CONSTRUCTION.
- ALL DISTURBED AREAS SHALL BE SEED AND MULCHED OR SOODED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL, IN THE OPINION OF THE GEOTECHNICAL ENGINEER, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.

SOIL TYPES:

ACCORDING TO THE "SOIL SURVEY OF OAKLAND COUNTY, MICHIGAN", THE FOLLOWING SOIL TYPES ARE PRESENT:

- 100 - MARLETTE LOAM, 12 TO 18 PERCENT SLOPES
- 118 - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES
- 138 - OSHTIMO-BOYER LOAMY SANDS, 0 TO 6 PERCENT SLOPES
- 13C - OSHTIMO-BOYER LOAMY SANDS, 8 TO 12 PERCENT SLOPES
- 13E - OSHTIMO-BOYER LOAMY SANDS, 12 TO 40 PERCENT SLOPES
- 18B - FOX SANDY LOAM, TILL PLAIN, 2 TO 6 PERCENT SLOPES
- 27 - HOUGHTON AND ADRIAN MUCKS
- 40A - UDORTHERTS, LOAMY, NEARLY LEVEL
- 40C - UDORTHERTS, LOAMY, ROLLING
- 41B - AQUENTS, SANDY, LOAMY, UNDULATING
- 54A - MATHERTON SANDY LOAM, 0 TO 3 PERCENT SLOPES
- W - WATER

CAUTION!

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GRADING PLAN - NORTH
NOVI LAKESHORE PARK
PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E.
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: BK, DN, BK, SUR, P.M, SS
DATE: 06/30/2017

ORIGINAL ISSUE DATE:
JUNE 30, 2017

PEA JOB NO: 2016-308

SCALE: 1" = 30'

DRAWING NUMBER:
C-4.1

NOT FOR CONSTRUCTION

BENCHMARKS

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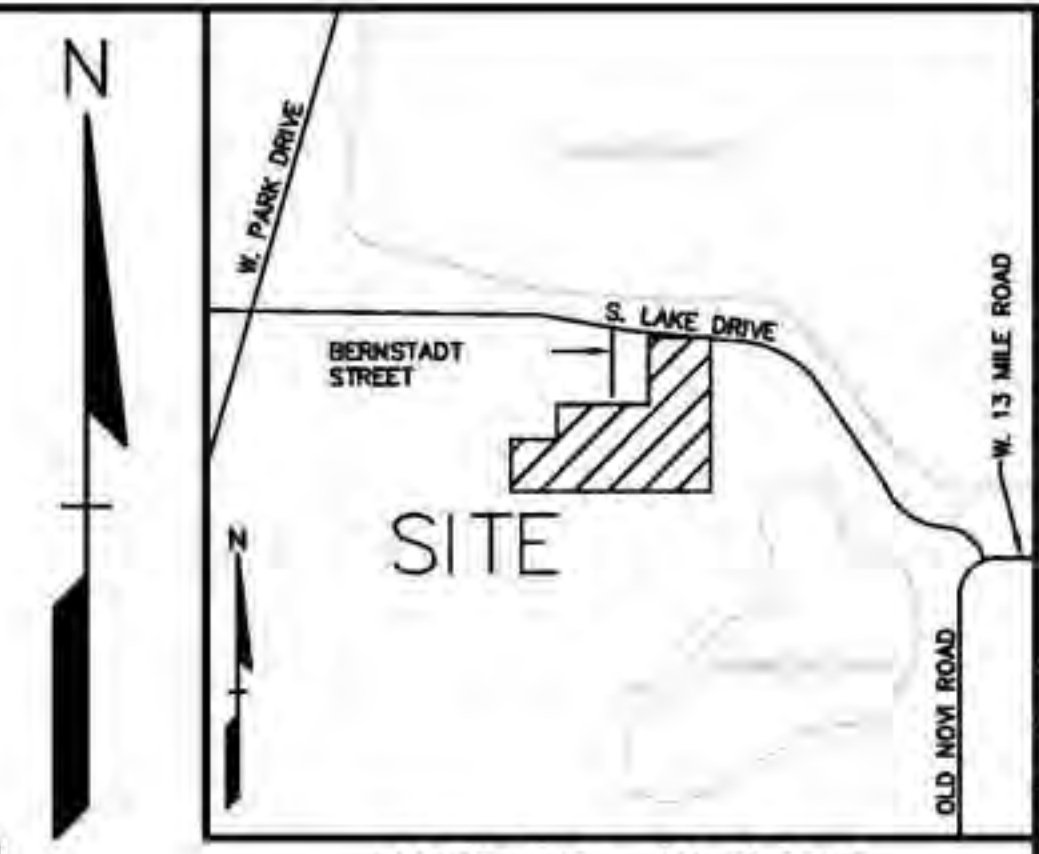
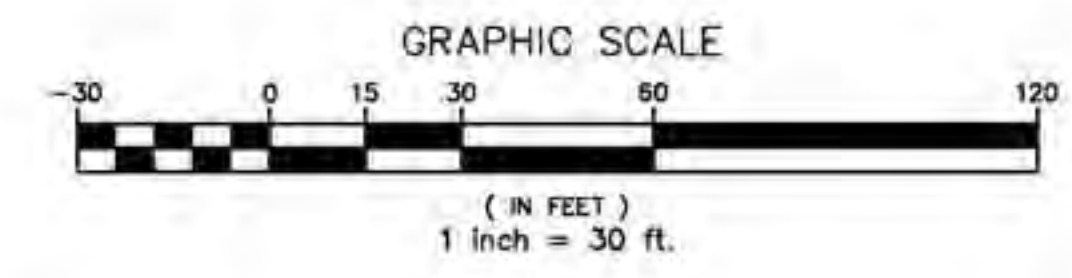
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REVISIONS

NO.	DATE	DESCRIPTION
1	07-20-17	PRELIMINARY SUBMITTAL
2	08-15-17	REVISED PER COMMENTS
3	08-22-17	REVISED PER COMMENTS
4	09-05-17	REVISED PER COMMENTS
5	09-12-17	REVISED PER COMMENTS
6	09-19-17	REVISED PER COMMENTS
7	09-26-17	REVISED PER COMMENTS
8	10-03-17	REVISED PER COMMENTS
9	10-10-17	REVISED PER COMMENTS
10	10-17-17	REVISED PER COMMENTS
11	10-24-17	REVISED PER COMMENTS
12	10-31-17	REVISED PER COMMENTS
13	11-07-17	REVISED PER COMMENTS
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294	03-29-23	REVISED

BENCHMARKS

BM A
RAILROAD SPIKE ON THE EAST SIDE OF A UTILITY POLE LOCATED APPROX. 87'± EAST OF THE BATHROOMS.
ELEV. - 942.69

BM B
BOLT IN THE NORTHEAST SIDE OF A LIGHT POLE BASE LOCATED ON THE SOUTH SIDE OF THE GRANL. PARKING LOT, APPROX. 57'± NORTHEAST OF THE PAVILION
ELEV. - 943.15

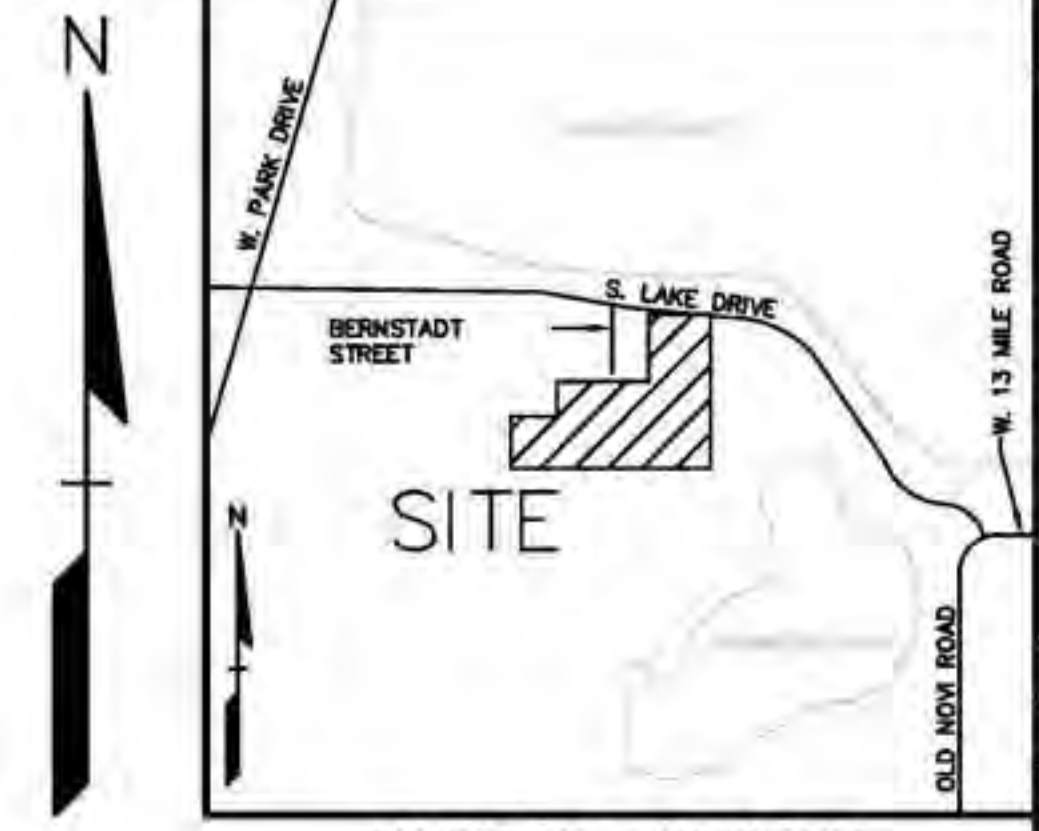
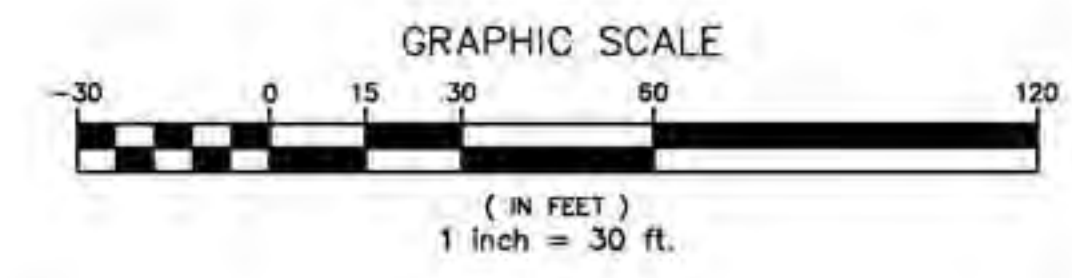
BM C
NAIL ON THE NORTHEAST SIDE OF A UTILITY POLE LOCATED ON THE SOUTH SIDE OF S. LAKE DRIVE, APPROX. 40'± WEST OF THE PARK ENTRANCE
ELEV. - 938.43

FLOODPLAIN:
(Per Flood Insurance Rate Map Number 26125C0488F, Effective Date September 29, 2006)

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

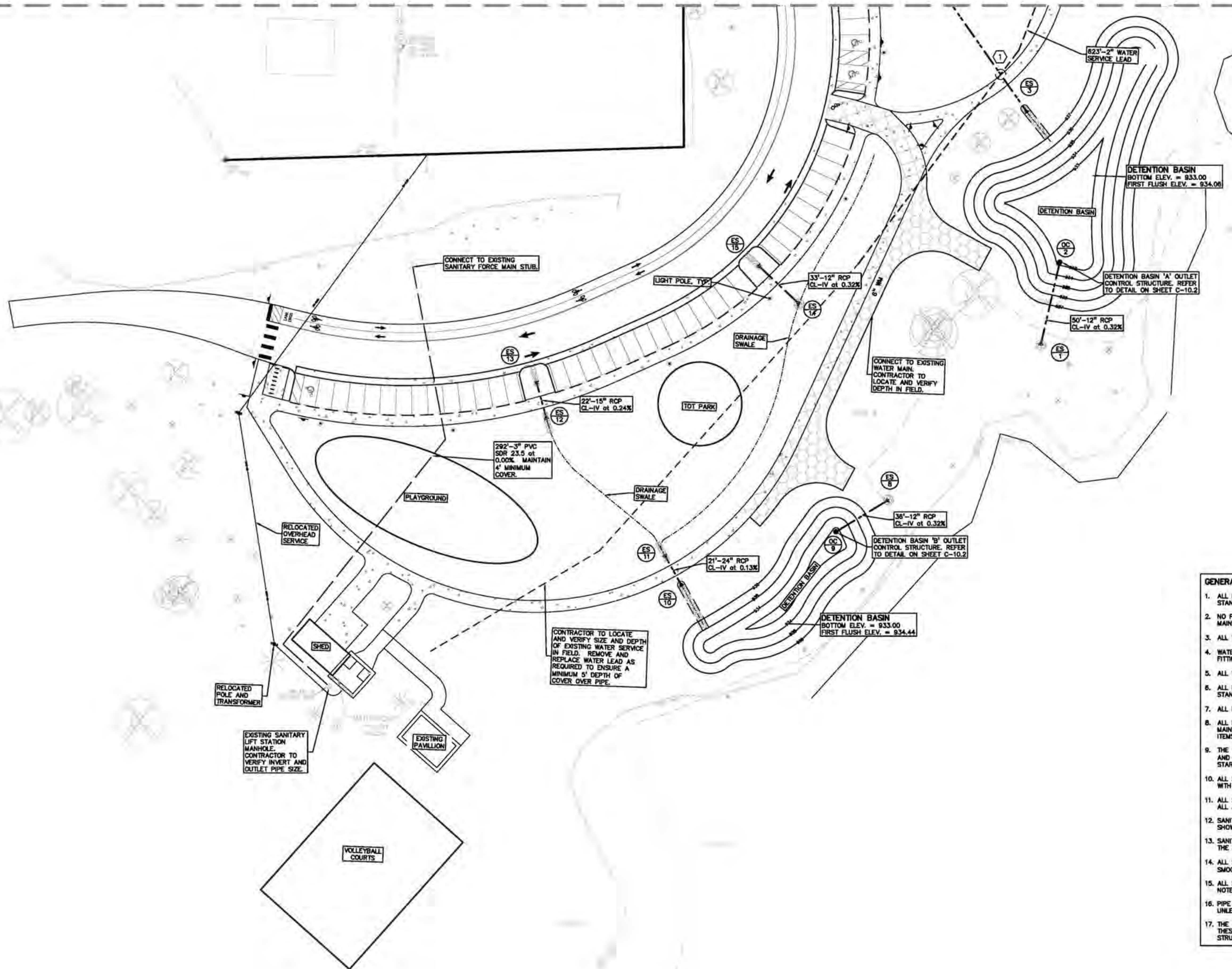
ZONE AE - Base Flood Elevations determined.

OTHER AREAS
ZONE X - Area to be determined outside of the 0.2% annual chance floodplain.



NO.	DATE	DESCRIPTION
1	07-25-17	PRELIMINARY SUBMITTAL
2	08-15-17	SITE PLAN APPROVAL
3	08-22-17	FINAL DESIGN SUBMITTAL
4	08-22-17	FINAL DESIGN SUBMITTAL

REVISIONS



LEGEND

IRON FOUND, IRON SET, NAIL FOUND, NAIL & CAP SET, BRASS PLUG SET, MONUMENT SET, SEC. CORNER FOUND, REDUCED, MEASURED, CALCULATED.

TELE. PHONE OR CABLE TV G/L LINE, POLE & R/F WIRE, UNDERGROUND CABLE TV, CABLE PEDESTAL, TELEPHONE G/L CABLE, FIBERGLASS & MANHOLE, ELECTRIC G/L CABLE, MANHOLE, METE & SERVICE, GAS MAIN, VALVE & GAS LINE W/WORK, WATERMAIN, (100, 500, 600) VALVE, TAPPING SLEEVE & VALVE, SANITARY SEWER, CLEANOUT & MANHOLE, STORM SEWER, CLEANOUT & MANHOLE, COMBINED SEWER & MANHOLE, SQUARE ROAD & BENTON CHUTE SIGN, POST INDICATOR VALVE, WATER VALVE BOX/PORTANT VALVE BOX, SERVICE VALVE/VALVE, METER, TRANSFORMER, IRRIGATION CONTROL VALVE, UNIDENTIFIED STRUCTURE, SPOT ELEVATION, CONTROL LINE, FIRE, DRIVE PAV., STREET LIGHT, SIGN, CONCRETE, ASPHALT.

PUBLIC UTILITY EASEMENTS:
ALL SANITARY SEWERS 8" AND LARGER IN DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER MAIN SHALL BE LOCATED IN A 20' WIDE EASEMENT.

SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS B GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

- GENERAL UTILITY NOTES:**
- ALL UTILITY LINES, STRUCTURES AND TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE CITY OF NOV.
 - NO PHYSICAL CONNECTION TO THE EXISTING WATER MAIN CAN BE MADE UNTIL ALL NEW WATER MAIN PASSES PRESSURE AND BACTERIOLOGICAL TESTS TO THE SATISFACTION OF THE CITY.
 - ALL WATER MAIN AND FITTINGS (3" DIAMETER AND LARGER) SHALL BE DUCTILE IRON, CLASS 54.
 - WATER MAIN SERVICE LEADS SHALL BE TYPE K ANNEALED SEAMLESS COPPER WITH FLARED FITTINGS, UNLESS OTHERWISE NOTED.
 - ALL WATER MAIN SHALL BE PROVIDED WITH 6" OF COVER UNLESS OTHERWISE NOTED.
 - ALL FIRE HYDRANTS SHALL BE E.J.W. "WATERMASTER" #50R MODEL #250 PER CITY OF NOV STANDARDS.
 - ALL HYDRANTS TO BE A MINIMUM OF 5' FROM BACK OF CURB, TYP.
 - ALL NECESSARY FITTINGS, THRUST BLOCKS, RESTRAINING GLANDS, BLOW OFFS, ETC. FOR WATER MAIN ARE CONSIDERED INCIDENTAL TO THIS PROJECT. THE CONTRACTOR SHALL INSTALL THESE ITEMS AS NECESSARY AND AS REQUIRED BY THE CITY OF NOV.
 - THE WATER MAIN CONTRACTOR SHALL NOTIFY THE INSPECTION SECTION OF THE DETROIT WATER AND SEWER DEPARTMENT AT (313) 833-4682 AT LEAST THREE WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION.
 - ALL SANITARY SEWER 8" OR LARGER SHALL BE P.V.C. TRUSS PIPE (ASTM D2680) AND FITTINGS, WITH ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
 - ALL SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 23.5 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
 - SANITARY LEADS SHALL BE PROVIDED WITH CLEANOUTS EVERY 100 FEET AND AT EVERY BEND AS SHOWN. ALL CLEANOUTS TO BE PROVIDED WITH E.J.W. #1585 BOX OR EQUAL.
 - SANITARY LEADS SHALL BE PROVIDED WITH A MINIMUM OF 5 FEET COVER WHEN LOCATED WITHIN THE INFLUENCE ZONE OF PAVEMENT.
 - ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE HOPE DUAL-WALL CORRUGATED SMOOTH-LINED PIPE (A.D.S. HIGH-PERFORMANCE STORM PIPE) UNLESS OTHERWISE NOTED.
 - ALL STORM SEWER LEADS SHALL BE PVC SDR 26 WITH PUSH-ON JOINTS UNLESS OTHERWISE NOTED.
 - PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
 - THE CITY OF NOV STANDARD DETAIL SHEETS ARE INCORPORATED INTO AND MADE A PART OF THESE PLANS. CONTRACTOR TO REFER TO THE CITY OF NOV STANDARD DETAIL SHEETS FOR ALL STRUCTURE, PIPE MATERIALS, BEDDING, TESTING, ETC. NOTES AND DETAILS.

CAUTION!
This plan shows proposed utility lines and structures. It is not intended to be used as a guide for excavation or construction. The contractor shall verify the location and depth of all existing utilities before any excavation or construction begins. The contractor shall be responsible for obtaining all necessary permits and easements from the City of Novi and the Michigan Department of Transportation (MDOT). The contractor shall also be responsible for protecting all existing utilities and structures during the construction process.

3 FULL WORKING DAYS BEFORE YOU DIG CALL 811
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22071 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

UTILITY PLAN - SOUTH
NOVI LAKESHORE PARK
PART OF THE SE 1A/C/SECTION 3, T. 1 N. R. 8 E.
CITY OF NOV, OAKLAND COUNTY, MICHIGAN

DES: BK, DNI, BK, SUR, P.M., SS
CHK: BK, DNI, BK, SUR, P.M., SS

ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO: 2016-308
SCALE: 1" = 30'
DRAWING NUMBER: C-5.2

NOT FOR CONSTRUCTION

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF NOV, MDO, AND THE STATE OF MICHIGAN.
2. THE CONTRACTOR MUST CONTACT THE ENGINEER SHOULD THEY ENCOUNTER ANY DESIGN ISSUES DURING CONSTRUCTION. IF THE CONTRACTOR MAKES DESIGN MODIFICATIONS WITHOUT THE WRITTEN DIRECTION OF THE DESIGN ENGINEER, THE CONTRACTOR DOES SO AT HIS OWN RISK.
3. ALL NECESSARY PERMITS, TESTING, BONDS AND INSURANCES ETC., SHALL BE PAID FOR BY THE CONTRACTOR. THE OWNER SHALL PAY FOR ALL CITY INSPECTION FEES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING THE PERIODS OF CONSTRUCTION. THIS SHALL BE CONSIDERED INCIDENTAL TO THE JOB.
5. THE CONTRACTOR SHALL NOTIFY MISS DIG (811) AND REPRESENTATIVES OF OTHER UTILITIES IN THE VICINITY OF THE WORK A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION (EXCLUDING WEEKENDS AND HOLIDAYS) FOR LOCATION AND STAKING OF ON-SITE UTILITY LINES. IF NO NOTIFICATION IS GIVEN AND DAMAGE RESULTS, SAID DAMAGE WILL BE REPAIRED AT SOLE EXPENSE OF THE CONTRACTOR. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.
6. CONTRACTOR TO VERIFY THAT THE PLANS AND SPECIFICATIONS ARE THE VERY LATEST PLANS AND SPECIFICATIONS AND FURTHERMORE, VERIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN APPROVED. ALL ITEMS CONSTRUCTED BY THE CONTRACTOR PRIOR TO RECEIVING FINAL APPROVAL, HAVING TO BE ADJUSTED OR RE-DONE, SHALL BE AT THE CONTRACTOR'S EXPENSE. SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND/OR SPECIFICATIONS, THEY SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE CONTRACTOR.
7. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR.
8. MANHOLE, CATCH BASIN, GATE VALVES AND HYDRANT FINISH GRADES MUST BE CLOSELY CHECKED AND APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR'S WORK IS CONSIDERED COMPLETE.
9. CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF-SITE ANY TREES, BRUSH, STUMPS, TRASH OR OTHER UNWANTED DEBRIS AT THE OWNER'S DIRECTION, INCLUDING OLD BUILDING FOUNDATIONS AND FLOORS. BURNING OF TRASH, STUMPS OR OTHER DEBRIS SHALL NOT BE PERMITTED.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADING, SIGNAGE, LIGHTS AND TRAFFIC CONTROL DEVICES TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION). THE DESIGN ENGINEER, OWNER, CITY AND STATE SHALL NOT BE HELD LIABLE FOR ANY CLAIMS RESULTING FROM ACCIDENTS OR DAMAGES CAUSED BY THE CONTRACTOR'S FAILURE TO COMPLY WITH TRAFFIC AND PUBLIC SAFETY REGULATIONS DURING THE CONSTRUCTION PERIOD.
11. ALL EXCAVATIONS SHALL BE SLOPED, SHORED OR BRACED IN ACCORDANCE WITH MI-OSHA REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE AN ADEQUATELY CONSTRUCTED AND BRACED SHORING SYSTEM FOR EMPLOYEES WORKING IN AN EXCAVATION THAT MAY EXPOSE EMPLOYEES TO THE DANGER OF MOVING GROUND.

PAVING NOTES:

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF NOV AND M.D.O.T.
2. IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
3. ON-SITE FILL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON-SITE SOIL IS USED, IT SHOULD BE CLEAN AND FREE OF FROZEN SOIL, ORGANICS, OR OTHER DELETERIOUS MATERIALS.
4. THE FINAL SUBGRADE/EXISTING AGGREGATE BASE SHOULD BE THOROUGHLY PROFFERED USING A FULLY LOADED TANDUM AXLE TRUCK OR FRONT END LOADER UNDER THE OBSERVATION OF A GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHOULD BE REINFORCED USING GEORGRIDS OR REMOVED AND REPLACED WITH ENGINEERED FILL OR AS DICTATED BY FIELD CONDITIONS.
5. SUBGRADE UNDERCUTTING, INCLUDING BACKFILLING SHALL BE PERFORMED TO REPLACE MATERIALS SUSCEPTIBLE TO FROST HEAVING AND UNSTABLE SOIL CONDITIONS. ANY EXCAVATIONS THAT MAY BE REQUIRED BELOW THE TOPSOIL IN FILL SECTIONS OR BELOW SUBGRADE IN CUT SECTIONS, WILL BE CLASSIFIED AS SUBGRADE UNDERCUTTING.
6. SUBGRADE UNDERCUTTING SHALL BE PERFORMED WHERE NECESSARY AND THE EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY SUBGRADE UNDERCUTTING SHALL BE BACKFILLED WITH SAND OR OTHER SIMILAR APPROVED MATERIAL. BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT (PER ASTM D-1557) UNLESS OTHERWISE SPECIFIED.
7. BACKFILL UNDER PAVED AREAS SHALL BE AS SPECIFIED ON DETAILS.
8. ANY SUB-GRADE WATERING REQUIRED TO ACHIEVE REQUIRED DENSITY SHALL BE CONSIDERED INCIDENTAL TO THE JOB.
9. FINAL PAVEMENT ELEVATIONS SHOULD BE SO DESIGNED TO PROVIDE POSITIVE SURFACE DRAINAGE. A MINIMUM SURFACE SLOPE OF 1.0 PERCENT IS RECOMMENDED.
10. CONSTRUCTION TRAFFIC SHOULD BE MINIMIZED ON THE NEW PAVEMENT. IF CONSTRUCTION TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, THE INITIAL LIFT THICKNESS COULD BE INCREASED AND PLACEMENT OF THE FINAL LIFT COULD BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. THIS ACTION WILL ALLOW REPAIR OF LOCALIZED FAILURE, IF ANY DOES OCCUR, AS WELL AS REDUCE LOAD DAMAGE ON THE PAVEMENT SYSTEM.

GENERAL UTILITY NOTES:

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF NOV AND M.D.O.T.
2. ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
3. WHENEVER EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER TO CENTER, AROUND PERIPHERY OF OPENING TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
4. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UTILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. CONTRACTOR TO FIELD VERIFY UTILITIES.
5. THE CONTRACTOR MUST COORDINATE TO ENSURE ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED FOR THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, IRRIGATION, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT AND LANDSCAPING.
6. REFER TO CITY OF NOV STANDARD DETAILS FOR PIPE BEDDING DETAILS.
7. REFER TO CITY OF NOV STANDARD DETAIL SHEETS FOR ADDITIONAL INFORMATION.

STORM SEWER NOTES:

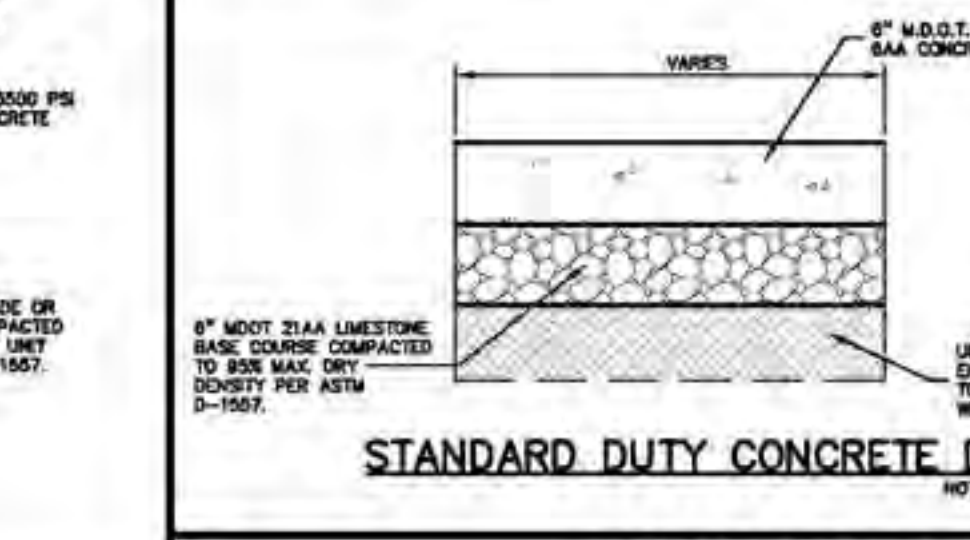
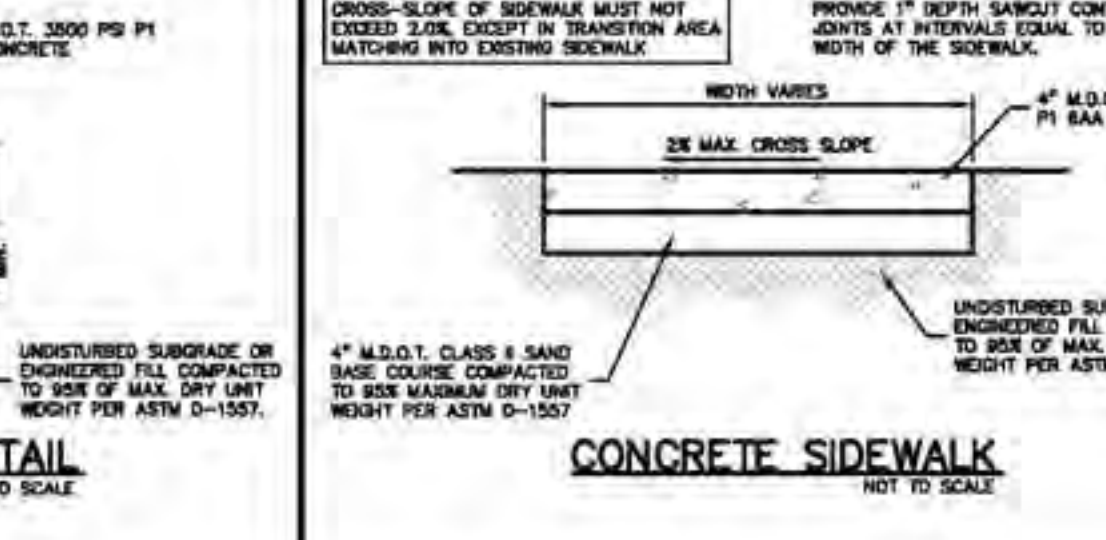
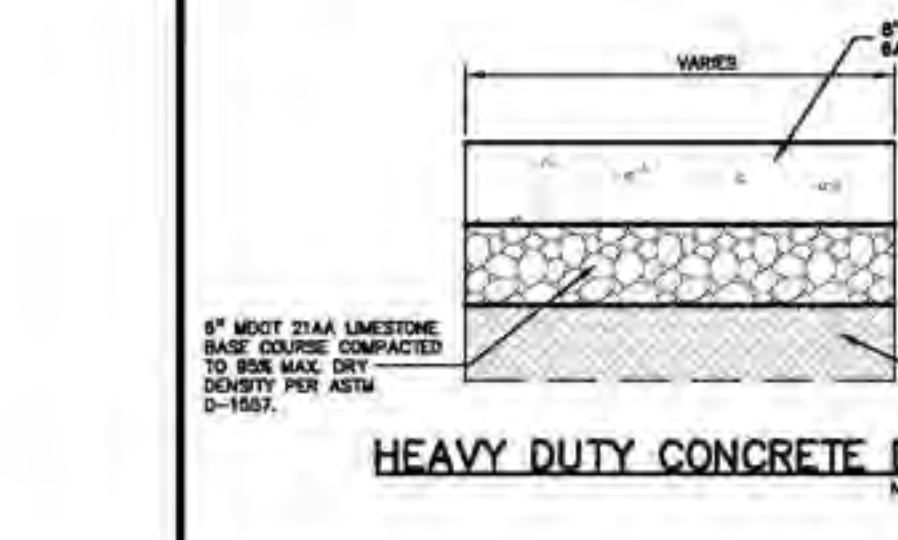
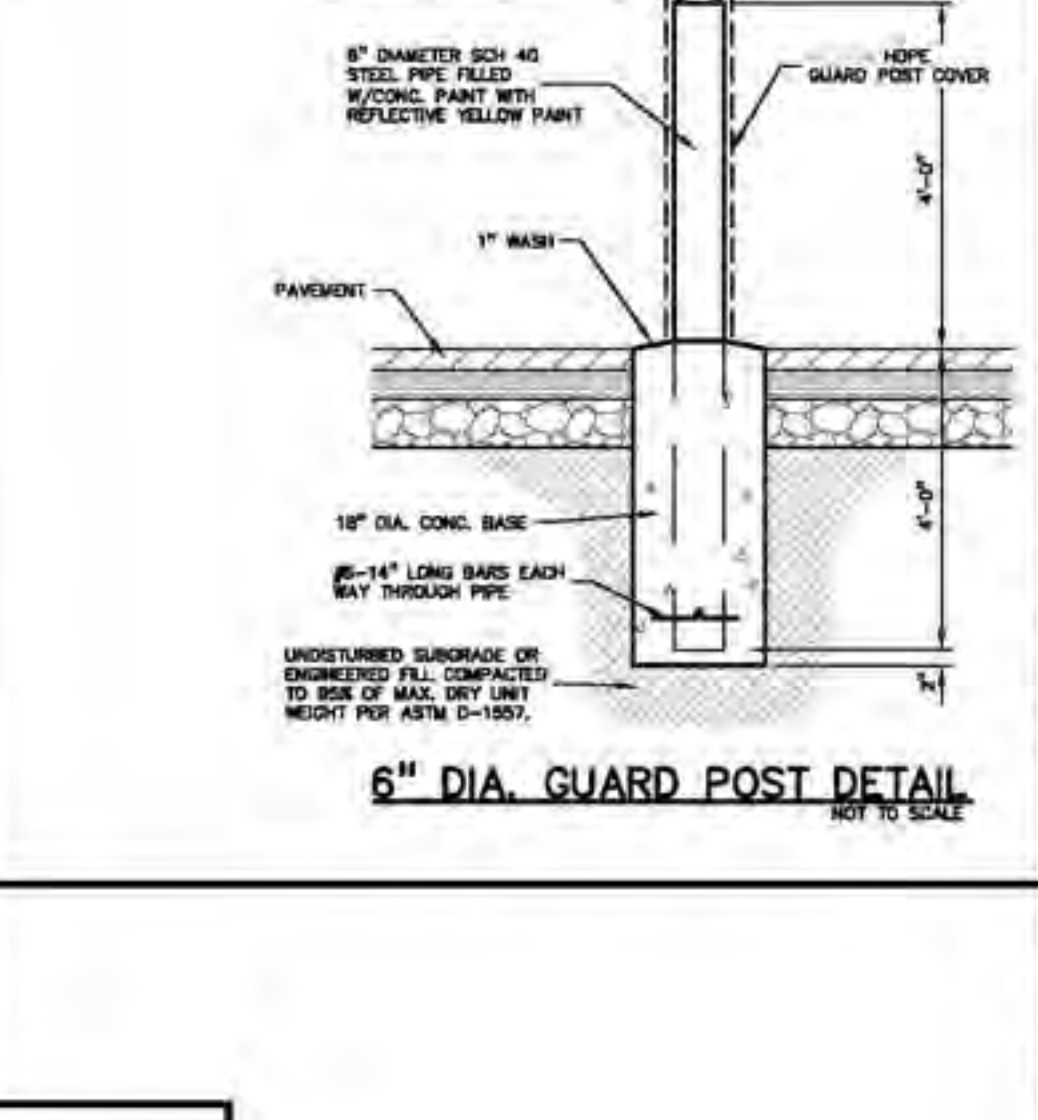
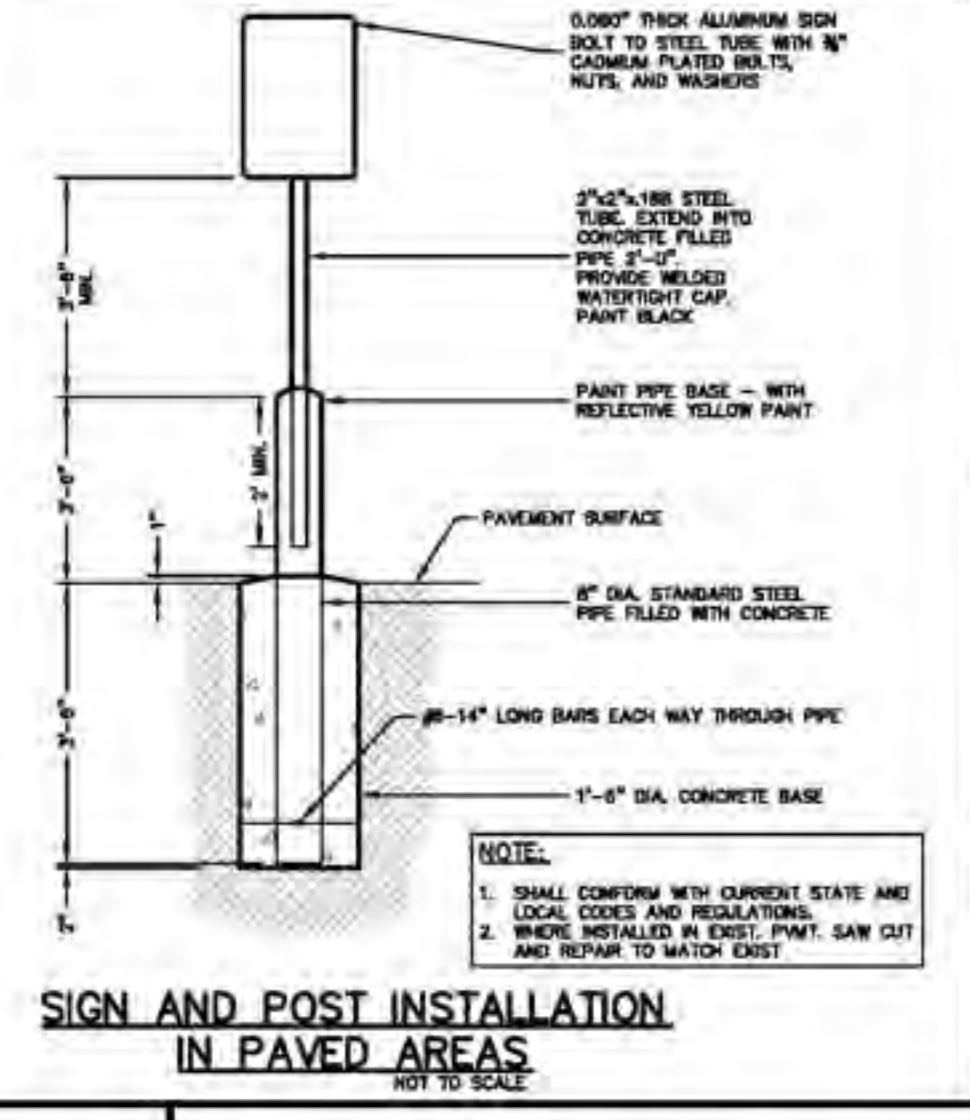
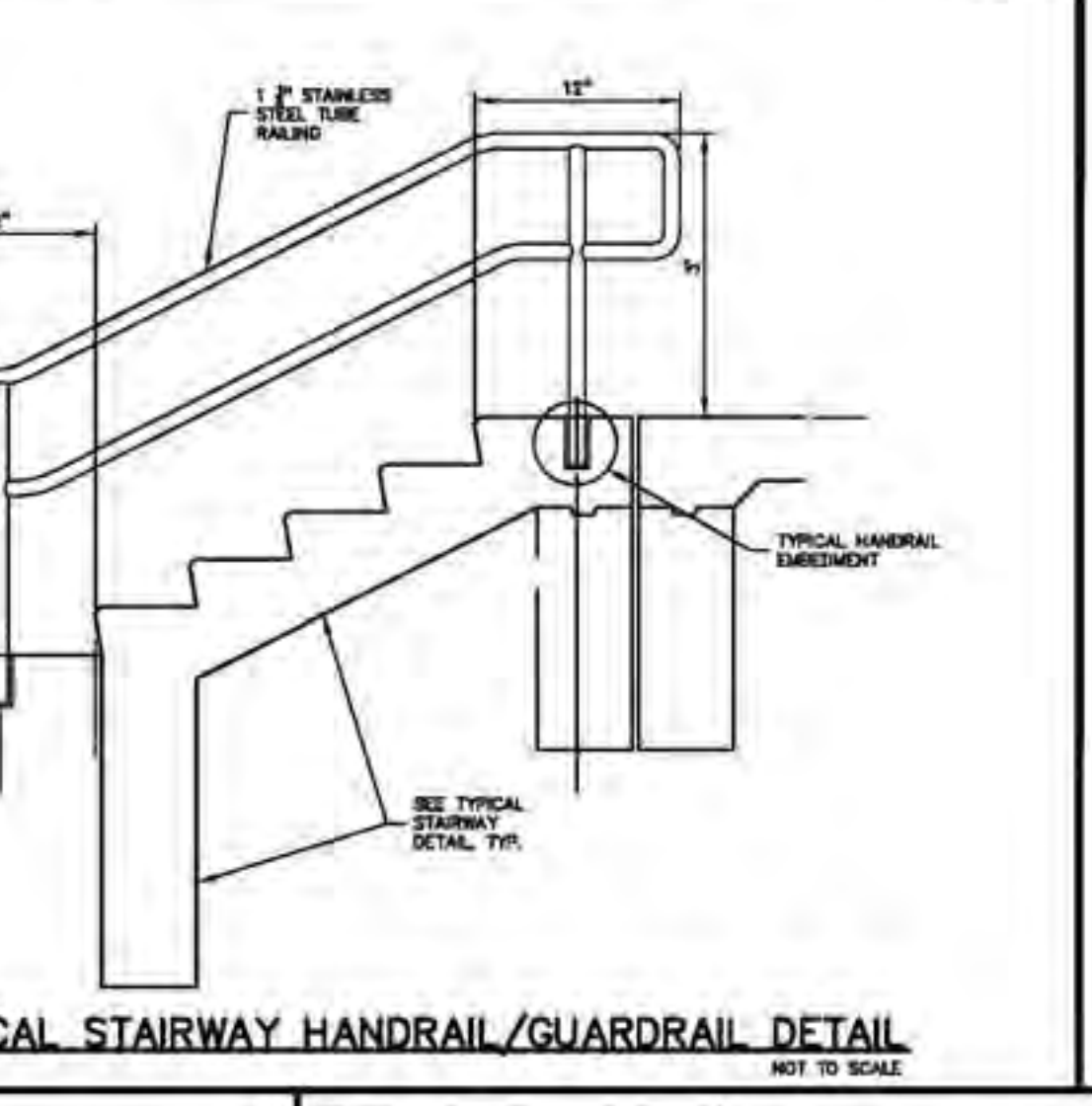
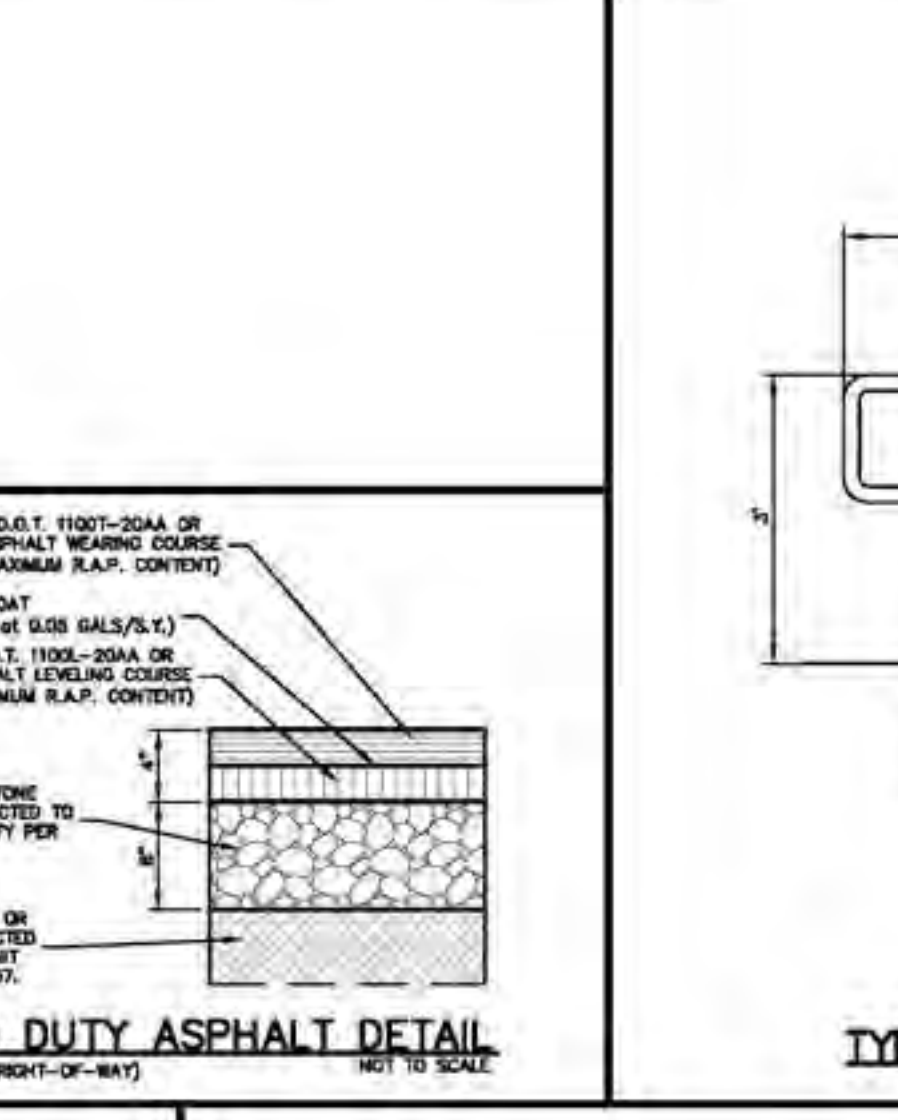
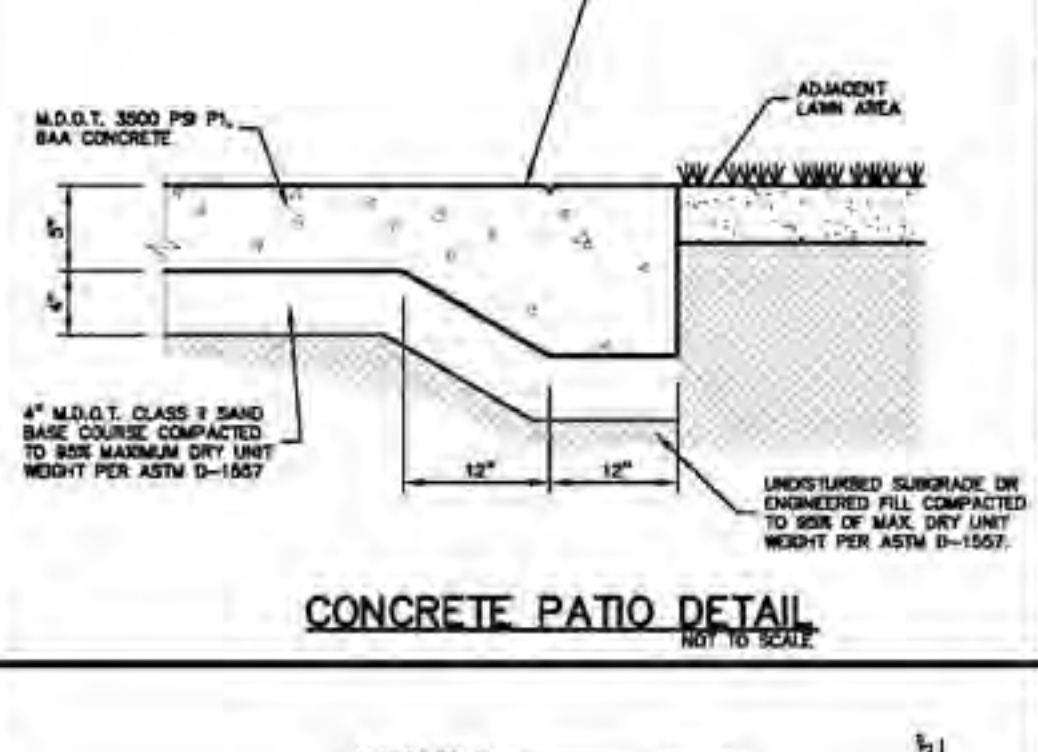
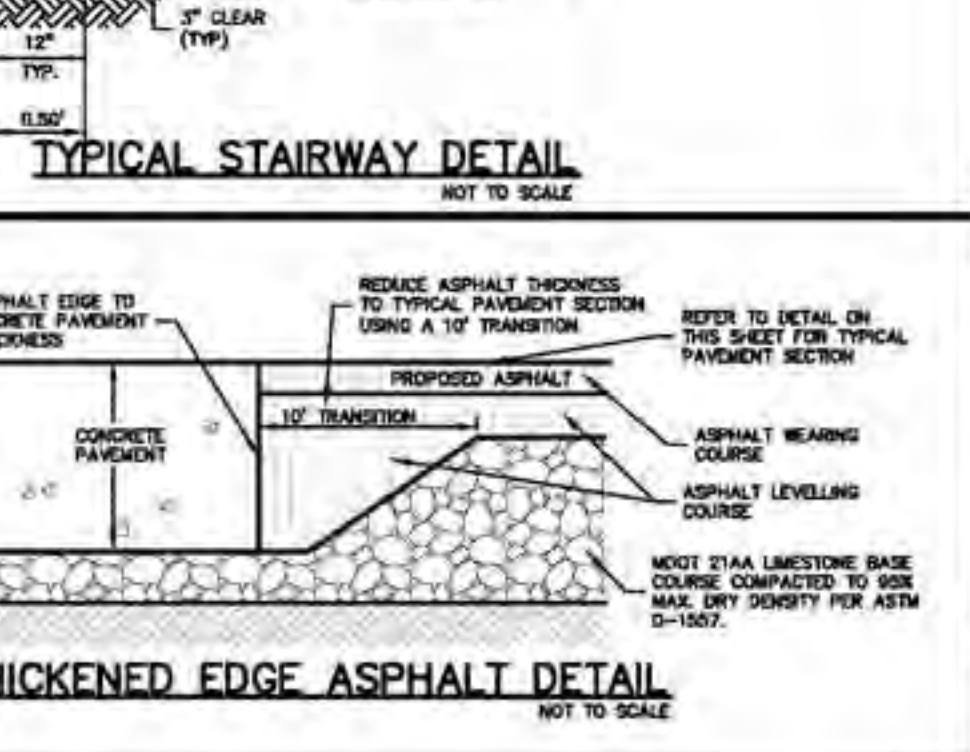
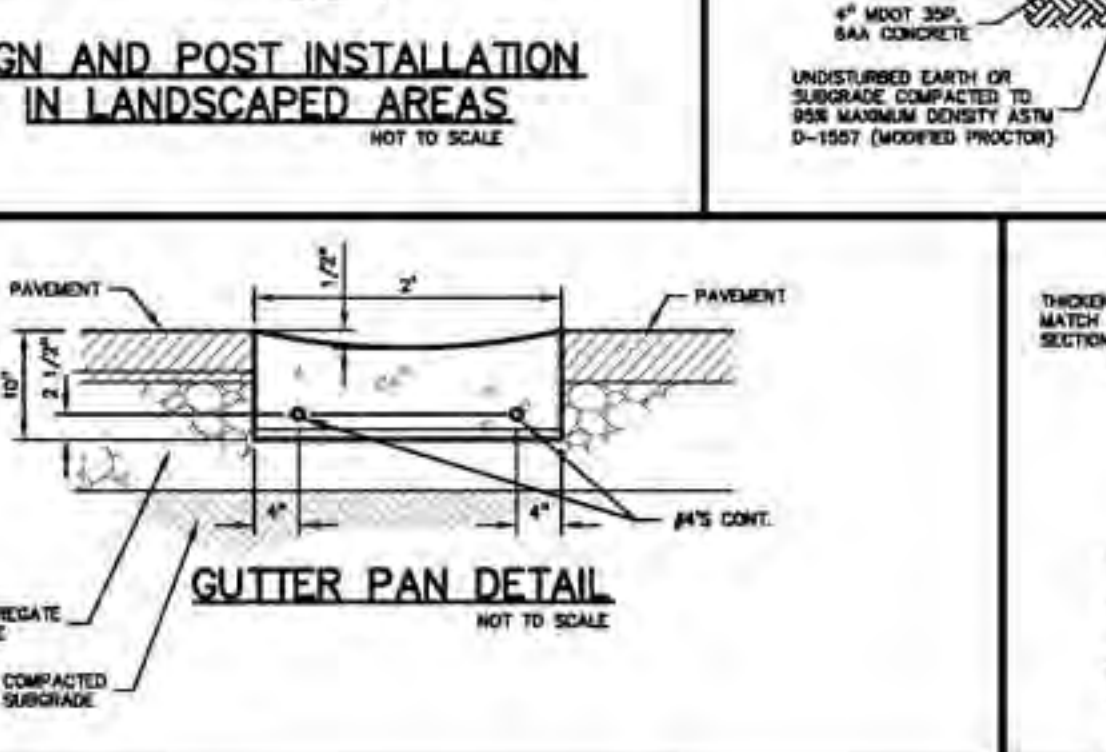
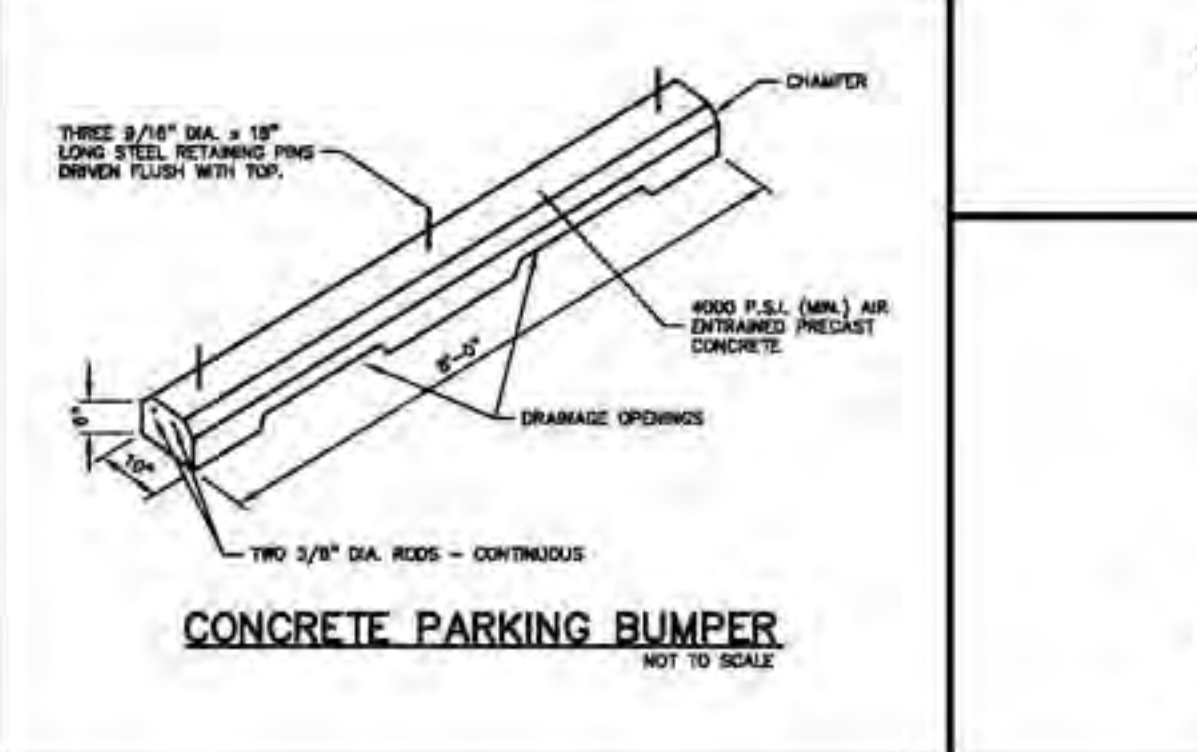
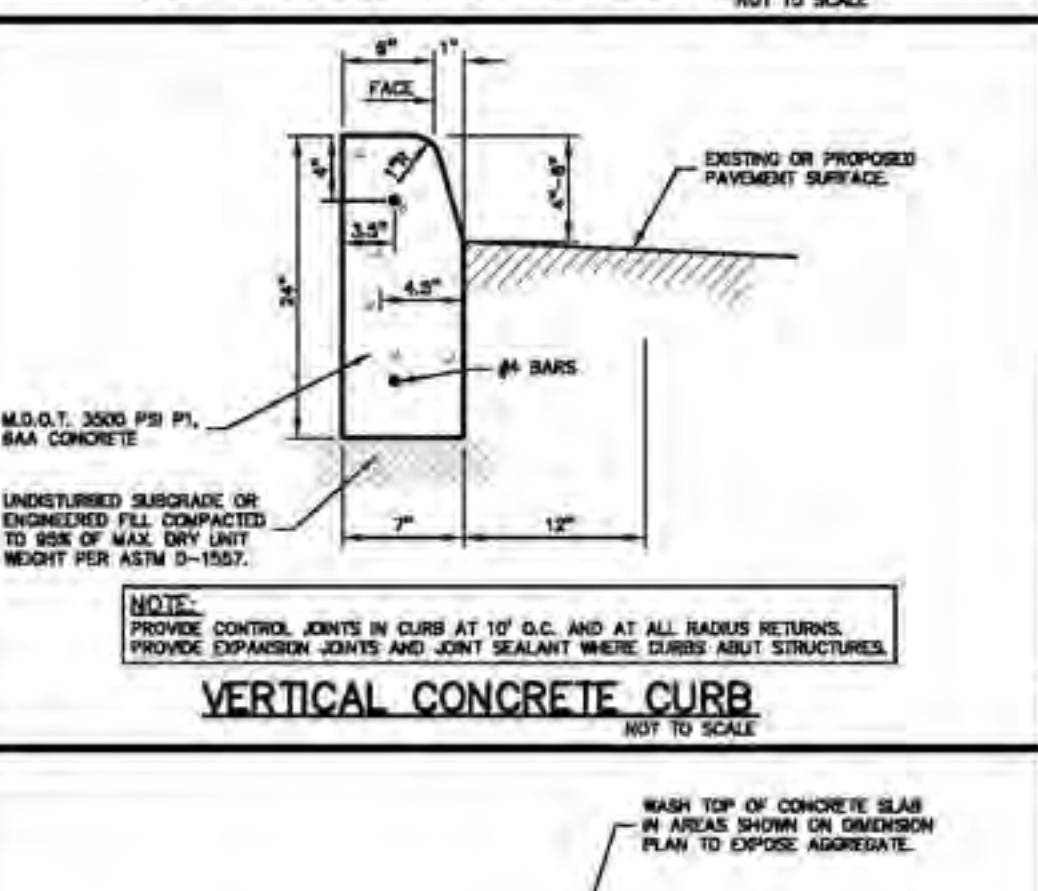
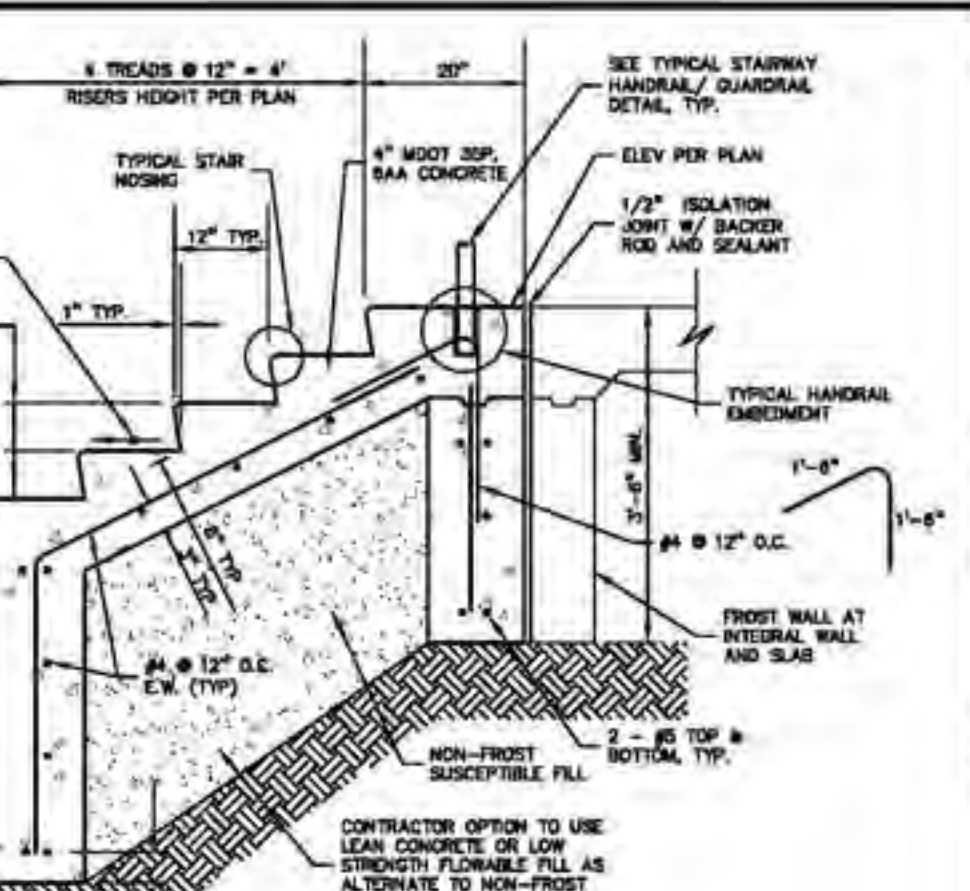
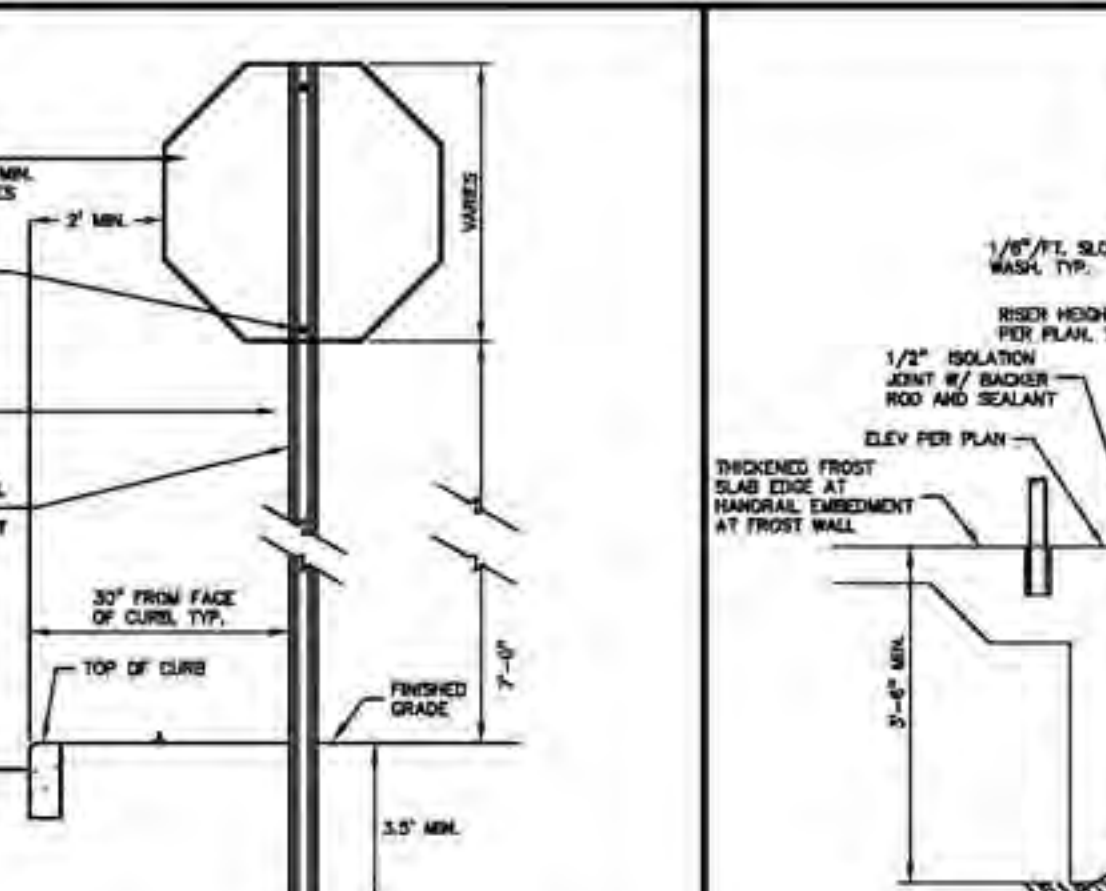
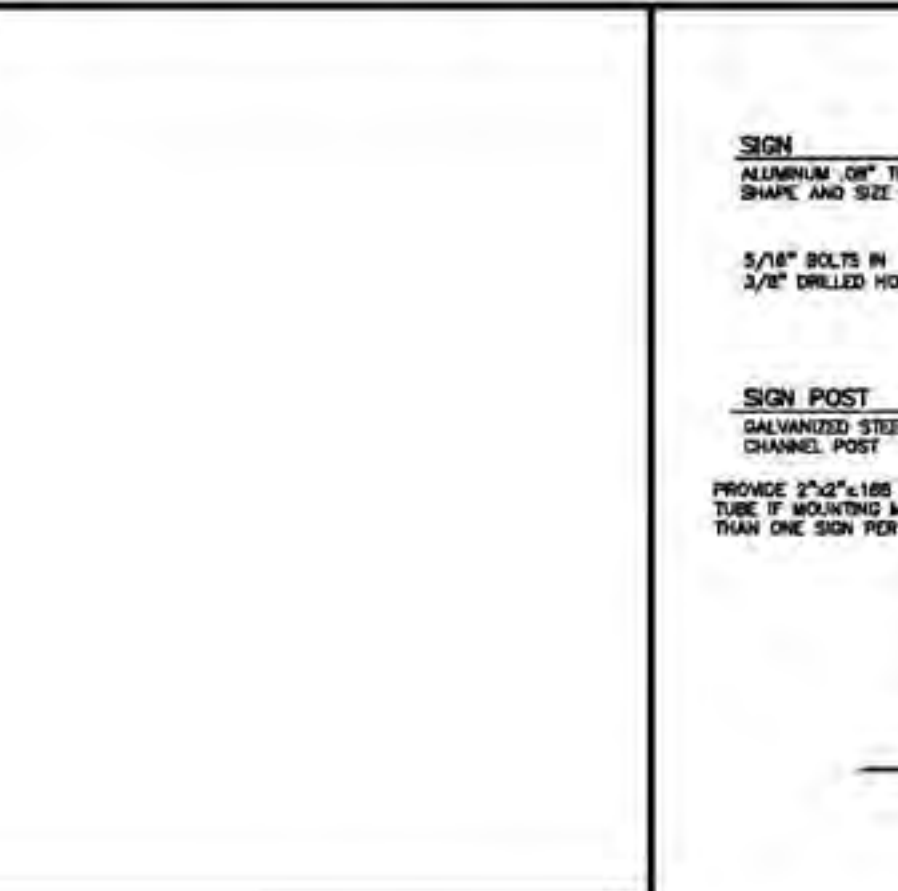
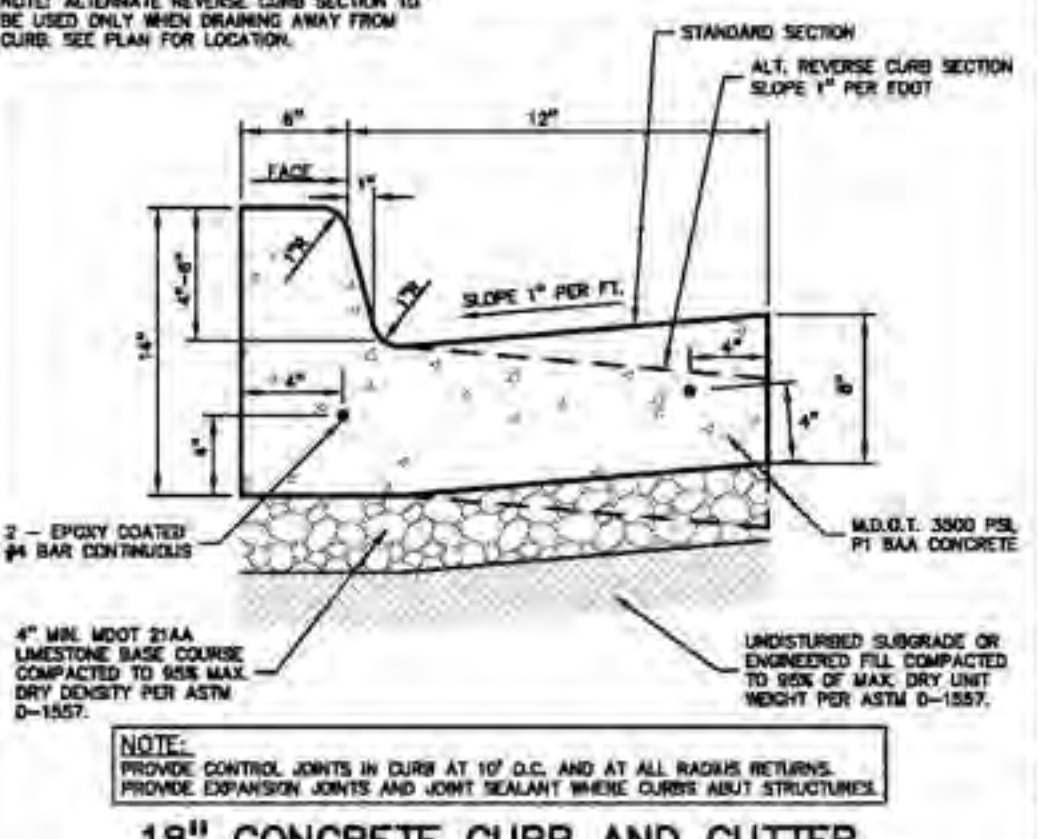
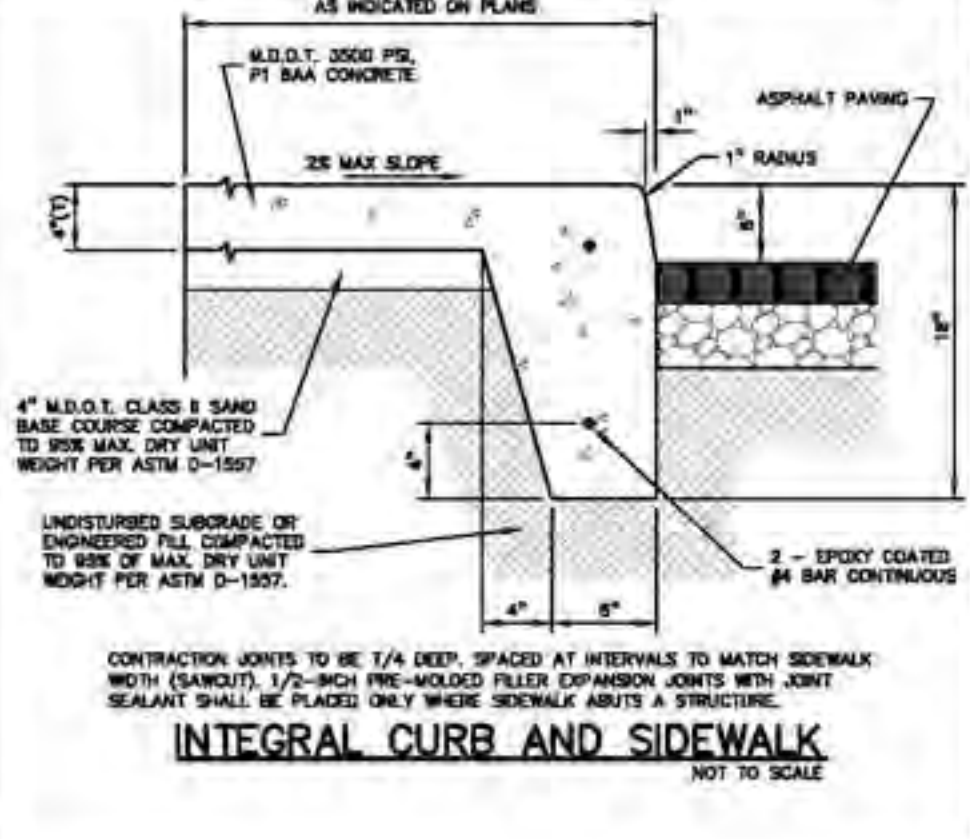
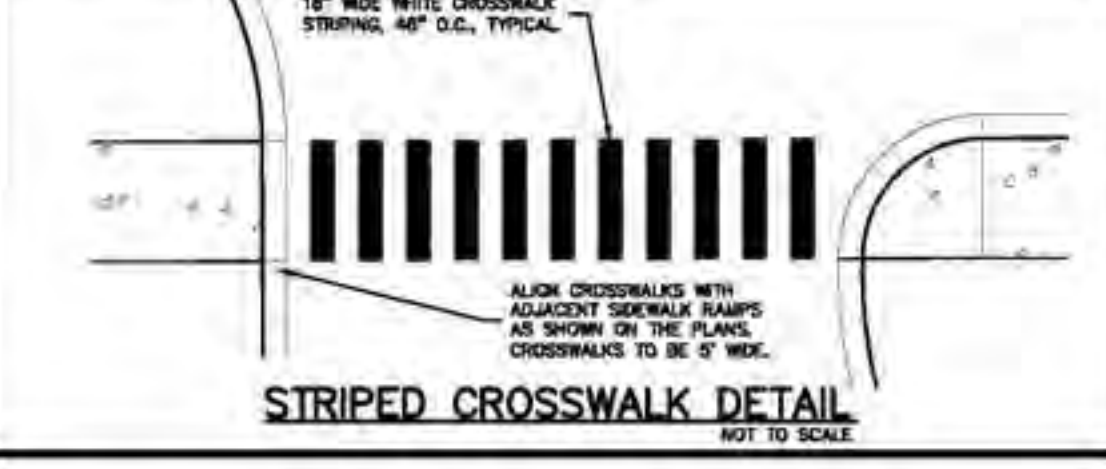
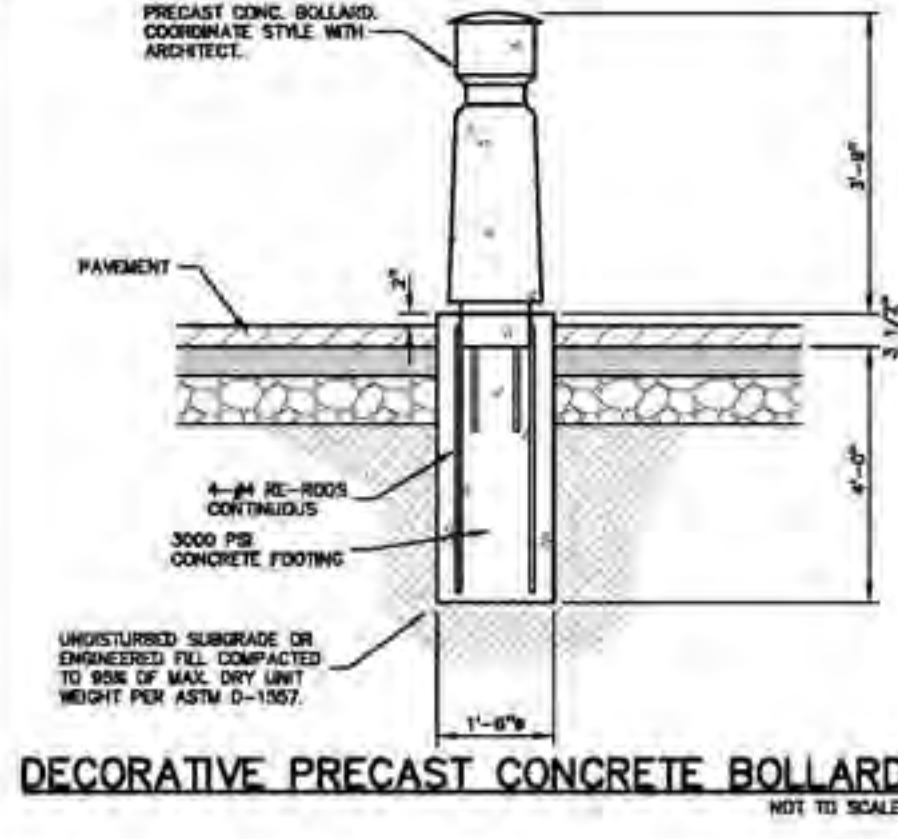
1. ALL STORM SEWER 12" AND LARGER SHALL BE ROP CLASS IV UNLESS OTHERWISE NOTED. REFER TO CITY STANDARD DETAILS SHEETS FOR STANDARD BEDDING DETAILS.
2. JOINTS FOR ALL STORM SEWER 12" AND LARGER SHALL BE MODIFIED TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE (ASTM C-443).
3. ALL STORM SEWER LEADS SHALL BE CONSTRUCTED OF PVC SCHEDULE 40 PIPE AT 1.00% MINIMUM SLOPE WITH GLUED JOINTS, UNLESS OTHERWISE NOTED. REFER TO DETAILS ON SHEET C-XX FOR BEDDING DETAILS.

WATER MAIN NOTES:

1. ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 5.0' BELOW FINISH GRADE. WHEN WATER MAINS MUST DIP TO PASS UNDER A STORM SEWER OR SANITARY SEWER THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF VERTICAL TWENTY TWO AND A HALF (22.5") DEGREE BENDS, PROPERLY ANCHORED.
2. ALL TEE'S, BENDS, CONNECTIONS, ETC. ARE CONSIDERED INCIDENTAL TO THE JOB.
3. PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATER MAINS UNTIL TESTING IS SATISFACTORILY COMPLETED.
4. MAINTAIN 10' HORIZONTAL CLEARANCE BETWEEN OUTER EDGE OF WATER MAIN AND ANY SANITARY SEWER OR STRUCTURE.
5. ALL WATER MAIN SHALL BE DUCTILE IRON CLASS 54 WITH POLYETHYLENE WRAP.

SANITARY SEWER NOTES:

1. DOWNSPOUTS, WEEP TILE, FOOTING DRAINS OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER.
2. ALL SANITARY LEADS SHALL BE CONSTRUCTED OF PVC SD 23.5 AT 1.00% MINIMUM SLOPE.
3. ALL SANITARY SEWER SHALL BE CONSTRUCTED OF PVC TRUSS PIPE WITH A MINIMUM DIAMETER OF 6" PER CITY REQUIREMENTS.
4. JOINTS FOR P.V.C. SOLID WALL PIPE SHALL BE ELASTOMERIC (RUBBER GASKET) AS SPECIFIED IN A.S.T.M. DESIGNATION D-3212.



NO.	DATE	DESCRIPTION
1	07-25-17	ISSUE FOR PERMITS
2	08-15-17	ISSUE FOR PERMITS
3	08-15-17	ISSUE FOR PERMITS
4	08-15-17	ISSUE FOR PERMITS
5	08-15-17	ISSUE FOR PERMITS
6	08-15-17	ISSUE FOR PERMITS
7	08-15-17	ISSUE FOR PERMITS
8	08-15-17	ISSUE FOR PERMITS
9	08-15-17	ISSUE FOR PERMITS
10	08-15-17	ISSUE FOR PERMITS
11	08-15-17	ISSUE FOR PERMITS
12	08-15-17	ISSUE FOR PERMITS
13	08-15-17	ISSUE FOR PERMITS
14	08-15-17	ISSUE FOR PERMITS
15	08-15-17	ISSUE FOR PERMITS
16	08-15-17	ISSUE FOR PERMITS
17	08-15-17	ISSUE FOR PERMITS
18	08-15-17	ISSUE FOR PERMITS
19	08-15-17	ISSUE FOR PERMITS
20	08-15-17	ISSUE FOR PERMITS

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FARMINGTON HILLS, MICHIGAN 48335
NOTES AND DETAILS
NOVI LAKESHORE PARK
PART OF THE SE 140C SECTION 3, T. 1 N. R. 8 E.
CITY OF NOV, OAKLAND COUNTY, MICHIGAN
DES: BK, DN, BK, SUR, P.M, SS
ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO: 2016-308
SCALE: N/A
DRAWING NUMBER: **C-10.1**

NOT FOR CONSTRUCTION

STORM PIPE CALCULATIONS

10 YEAR STORM SEWER DESIGN - 2016-308

P.E.A., INC.
2430 ROCHESTER COURT
TROY, MI 48063
(248) 689-9090

Q = C I A
Q = A x 1.486/n x R^{2/3} x S^{1/2}
I = 1/25 (1+25)

1 = 15.00 MIN
n1 = 0.01 HDPE & PVC
n2 = 0.01 CONC

FROM STR TO STR	DRAINAGE AREA #	AREA A ac	COEFF. C	A x C	AREA TOTAL AT ac	TOTAL C x A	TIME t min	lateral 1 name	lateral 2 name	lateral 3 name	INT. I ft	FLOW Q cfs	PIPE CAP cfs	CAP > Q	PIPE AREA sq ft	PIPE LENGTH ft	PIPE DIA. in	PIPE SLOPE %	H G SLOPE %	VEL FULL ft/sec	TIME FLOW min	H G ELEV UP STREAM	H G ELEV DOWN STREAM	INVERT ELEV UP STREAM	ELEV DOWN STREAM	RIM ELEV UP STREAM	RIM ELEV DOWN STREAM	PIPE COVER AT STR UP	PIPE COVER AT STR DOWN	H G L UP STREAM	COVER DOWN STREAM
2-1	7	0.661	0.53	0.35	2.70	1.70	15.00	4-3			4.38	0.72	2.01	1.29	0.79	50	12	0.32	0.32	2.56	0.33	933.80	933.64	933.00	932.84	937.30	933.84	3.30		3.50	0.20
7-6	2	0.182	0.28	0.05	0.18	0.05	15.00				4.38	0.22	0.24	0.02	0.05	170	4	0.32	0.32	2.74	1.03	939.89	938.30	939.62	938.03	940.35	941.20	0.40	2.84	0.46	2.90
6-5	4	0.017	0.27	0.00	0.34	0.09	16.03	6A-6			4.26	0.38	0.09	0.51	0.35	27	8	0.32	0.32	2.56	0.17	938.00	937.92	937.47	937.38	941.20	941.75	3.06	3.70	3.20	3.63
5-4	3	0.801	0.80	0.64	1.33	0.88	16.21	5A-5			4.25	3.75	4.52	0.77	1.77	77	18	0.19	0.16	2.56	0.50	937.92	937.77	936.72	936.57	941.75	941.00	3.33	2.93	3.63	3.23
4-3	6	0.210	0.55	0.11	2.04	1.35	16.71	4A-4			4.20	5.66	8.04	2.38	3.14	137	24	0.13	0.13	2.56	0.89	937.77	937.60	936.17	936.00	941.00	938.00	2.83		3.23	0.40
9A-6	3A	0.136	0.23	0.03	0.14	0.03	15.00				4.30	0.15	1.00	0.05	0.35	146	6	0.41	0.41	2.56	0.69	936.94	936.46	936.41	937.33	939.93	941.20	0.86	2.50	0.99	2.74
5A-5	3A	0.195	0.78	0.15	0.19	0.15	15.00				4.38	0.66	0.89	0.23	0.35	72	8	0.32	0.32	2.56	0.47	938.15	937.92	937.62	937.38	943.00	941.75	4.72	3.70	4.85	3.63
4A-4	5	0.499	0.70	0.35	0.50	0.35	15.00				4.38	1.54	2.01	0.47	0.79	40	12	0.32	0.32	2.56	0.26	937.90	937.77	937.10	936.97	939.96	941.00	1.86	3.03	2.06	3.23
8-8	12	0.337	0.47	0.16	2.68	1.23	15.00	11-10			4.38	0.54	2.01	1.47	0.79	36	12	0.32	0.32	2.56	0.23	933.78	933.68	932.99	932.38	937.44	933.88	3.44		3.64	0.20
11-10	11	0.789	0.26	0.20	2.34	1.05	15.00	13-12	15-14		4.38	4.71	6.04	3.32	3.14	21	24	0.13	0.13	2.56	0.14	937.46	937.43	935.96	935.83	937.86	937.83			0.40	0.40
13-12	10	0.891	0.57	0.51	0.89	0.51	15.00				4.38	2.23	3.14	0.91	1.23	22	15	0.24	0.24	2.56	0.14	936.83	936.78	937.83	937.78	939.08	939.93			0.25	0.25
15-14	8	0.661	0.66	0.37	0.66	0.37	15.00				4.38	1.62	2.01	0.39	0.79	33	12	0.32	0.32	2.56	0.22	938.86	938.85	938.16	938.05	939.16	939.05			0.20	0.20

"C" Water = 1.00
"C" Impervious = 0.95
"C" Greenspace = 0.25

Drainage Area	Impervious (sf)	Greenspace (sf)	Water (sf)	Total Area (sf)	Total Area (Acres)	Composite "C"
0	0	0	0	0	0.000	0.00
1	22213	16340	0	38553	0.885	0.65
2	298	7614	0	7910	0.182	0.28
3	27543	7370	0	34913	0.801	0.60
3A	6371	2102	0	8473	0.195	0.78
4	20	724	0	754	0.017	0.27
5	14076	7654	0	21740	0.499	0.70
5A	0	5993	0	5993	0.138	0.25
6	3878	5273	0	9151	0.210	0.53
7	2258	18025	8518	22802	0.521	0.53
8	12709	16077	0	28786	0.661	0.60
9	764	6961	0	7745	0.178	0.32
10	17912	20892	0	38794	0.891	0.57
11	0	34348	0	34348	0.789	0.25
12	899	10357	3402	14658	0.337	0.47
13	5147	38159	0	43306	0.994	0.33

DETENTION CALCULATIONS FOR BASIN 'A'

PER THE REQUIREMENTS OF THE CITY OF NOV ENGINEERING DEPARTMENT, ONLY THE FIRST FLUSH VOLUME MUST BE TREATED BY THE POND PRIOR TO DISCHARGE TO THE EXISTING WETLANDS.

STORM DETENTION DESIGN (PER NOVI DESIGN METHOD - Basin A)

Site Drainage Data
Contributing Area (A): 2.78 acre
Allowable Discharge (Qa): 0.91 cfs (0.13 cfs/acreage)
Coefficient of Runoff (Cr): 0.63

1-yr Design Storm Calculations for Sediment Basin Volume Requirement
V₁ = 1815xAc = 3080.53 cf

10-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.34 cfs/acre impervious
T = .25 + ((0.662.5/Qa))^{0.5} = 140.36 minutes
V_s = (10500(T)/(T+25)) - 40Q₀(T) = 7,389 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 12,640 cf

100-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.34 cfs/acre impervious
T = .25 + ((10312.5/Qa))^{0.5} = 162.29 minutes
V_s = (16500(T)/(T+25)) - 40Q₀(T) = 12,700 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 21,857 cf

Storage Provided in Sedimentation Basin (100 year)
1-yr Storage Elevation: 934.06
100 year: 936.88

Elev. (ft)	Area (sf)	Vol. (cf)	Total Vol. (cf)
933.0	1,822	0	0
934.0	3,742	2,762	2,762
935.0	6,017	4,880	7,642
936.0	8,516	7,268	14,910
937.0	11,246	9,882	24,792

Sediment Basin Standpipe Design
Basin Outlet Elevation: 933.00
1-yr Storage Elevation: 934.06
Avg. Head over Orifice (Hw): 0.53 ft
Median Surface Area (Am): 5,805.85
Am = V₁ / Hw
Area of Orifice (A): 0.016 sf
A = (0.3988 x Am x Hw^{0.5}) / 172,800
Standpipe Restriction Hole Dia.: 4 in
Standpipe Restriction Hole Area: 0.0872 sf
Number of Restriction Holes: 1
Total Restriction Hole Area: 0.0872 sf
Actual Discharge (Q): 0.32 cfs
Q = 0.82 * A * (2 * G * Hw)^{0.5}
Drain Time: 2.71 hrs

DETENTION CALCULATIONS FOR BASIN 'B'

PER THE REQUIREMENTS OF THE CITY OF NOV ENGINEERING DEPARTMENT, ONLY THE FIRST FLUSH VOLUME MUST BE TREATED BY THE POND PRIOR TO DISCHARGE TO THE EXISTING WETLANDS.

STORM DETENTION DESIGN (PER NOVI DESIGN METHOD - Basin B)

Site Drainage Data
Contributing Area (A): 2.88 acre
Allowable Discharge (Qa): 0.40 cfs (0.10 cfs/acreage)
Coefficient of Runoff (Cr): 0.46

1-yr Design Storm Calculations for Sediment Basin Volume Requirement
V₁ = 1815xAc = 2240.09 cf

10-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.32 cfs/acre impervious
T = .25 + ((0.662.5/Qa))^{0.5} = 118.21 minutes
V_s = (10500(T)/(T+25)) - 40Q₀(T) = 7,154 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 8,830 cf

100-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.32 cfs/acre impervious
T = .25 + ((10312.5/Qa))^{0.5} = 154.52 minutes
V_s = (16500(T)/(T+25)) - 40Q₀(T) = 12,224 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 15,087 cf

Storage Provided in Sedimentation Basin (100 year)
1-yr Storage Elevation: 934.44
100 year: 937.83

Elev. (ft)	Area (sf)	Vol. (cf)	Total Vol. (cf)
933.0	446	0	0
934.0	1,770	1,111	1,111
935.0	3,402	2,589	3,700
936.0	5,254	4,328	8,028

Sediment Basin Standpipe Design
Basin Outlet Elevation: 933.00
1-yr Storage Elevation: 934.44
Avg. Head over Orifice (Hw): 0.72 ft
Median Surface Area (Am): 3,119.26
Am = V₁ / Hw
Area of Orifice (A): 0.066 sf
A = (0.3988 x Am x Hw^{0.5}) / 172,800
Standpipe Restriction Hole Dia.: 8 in
Standpipe Restriction Hole Area: 0.0872 sf
Number of Restriction Holes: 1
Total Restriction Hole Area: 0.0872 sf
Actual Discharge (Q): 0.37 cfs
Q = 0.82 * A * (2 * G * Hw)^{0.5}
Drain Time: 1.69 hrs

DETENTION CALCULATIONS FOR RAIN GARDEN

PER THE REQUIREMENTS OF THE CITY OF NOV ENGINEERING DEPARTMENT, ONLY THE FIRST FLUSH VOLUME MUST BE TREATED BY THE POND PRIOR TO DISCHARGE TO THE EXISTING BEACH.

STORM DETENTION DESIGN (PER NOVI DESIGN METHOD - Rain Garden)

Site Drainage Data
Contributing Area (A): 0.88 acre
Allowable Discharge (Qa): 0.13 cfs (0.15 cfs/acreage)
Coefficient of Runoff (Cr): 0.66

1-yr Design Storm Calculations for Sediment Basin Volume Requirement
V₁ = 1815xAc = 1049.57 cf

10-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.22 cfs/acre impervious
T = .25 + ((0.662.5/Qa))^{0.5} = 147.71 minutes
V_s = (10500(T)/(T+25)) - 40Q₀(T) = 7,680 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 4,441 cf

100-yr Design Storm Calculations
Q₀ = ((Qa)/(A)(Cr)) = 0.22 cfs/acre impervious
T = .25 + ((10312.5/Qa))^{0.5} = 191.51 minutes
V_s = (16500(T)/(T+25)) - 40Q₀(T) = 12,909 cfs/acre impervious
V₁ = (V_s)(A)(Cr) = 7,464 cf

Storage Provided in Sedimentation Basin (100 year)
1-yr Storage Elevation: 939.84
100 year: 963.37

Elev. (ft)	Area (sf)	Vol. (cf)	Total Vol. (cf)
937.0	142	0	0
938.0	320	241	241
939.0	628	422	663

NO.	BY	DATE	DESCRIPTION
1	BL	05/15/17	PREPARED FOR SUBMITTAL
2	BL	05/15/17	PREPARED FOR SUBMITTAL
3	BL	05/15/17	PREPARED FOR SUBMITTAL
4	BL	05/15/17	PREPARED FOR SUBMITTAL
5	BL	05/15/17	PREPARED FOR SUBMITTAL
6	BL	05/15/17	PREPARED FOR SUBMITTAL
7	BL	05/15/17	PREPARED FOR SUBMITTAL
8	BL	05/15/17	PREPARED FOR SUBMITTAL
9	BL	05/15/17	PREPARED FOR SUBMITTAL
10	BL	05/15/17	PREPARED FOR SUBMITTAL
11	BL	05/15/17	PREPARED FOR SUBMITTAL
12	BL	05/15/17	PREPARED FOR SUBMITTAL
13	BL	05/15/17	PREPARED FOR SUBMITTAL
14	BL	05/15/17	PREPARED FOR SUBMITTAL
15	BL	05/15/17	PREPARED FOR SUBMITTAL
16	BL	05/15/17	PREPARED FOR SUBMITTAL
17	BL	05/15/17	PREPARED FOR SUBMITTAL
18	BL	05/15/17	PREPARED FOR SUBMITTAL
19	BL	05/15/17	PREPARED FOR SUBMITTAL
20	BL	05/15/17	PREPARED FOR SUBMITTAL

CAUTION!
THE LOCATIONS AND ELEVATIONS OF THE STORM SEWER SYSTEM ARE SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THESE DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF NOV AND THE STATE OF MICHIGAN PRIOR TO THE START OF CONSTRUCTION.

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23761 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335
DRAINAGE CALCULATIONS
NOVI LAKESHORE PARK
PART OF THE SE HADOT SECTION 3, T. 1 N. R. 8 E.
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

ORIGINAL IS SUE DATE: JUNE 30, 2017
PEA JOB NO. 2016-308
SCALE: 1" = 40'
DRAWING NUMBER: C-11.2

TREE PLANT LIST: L-1.0

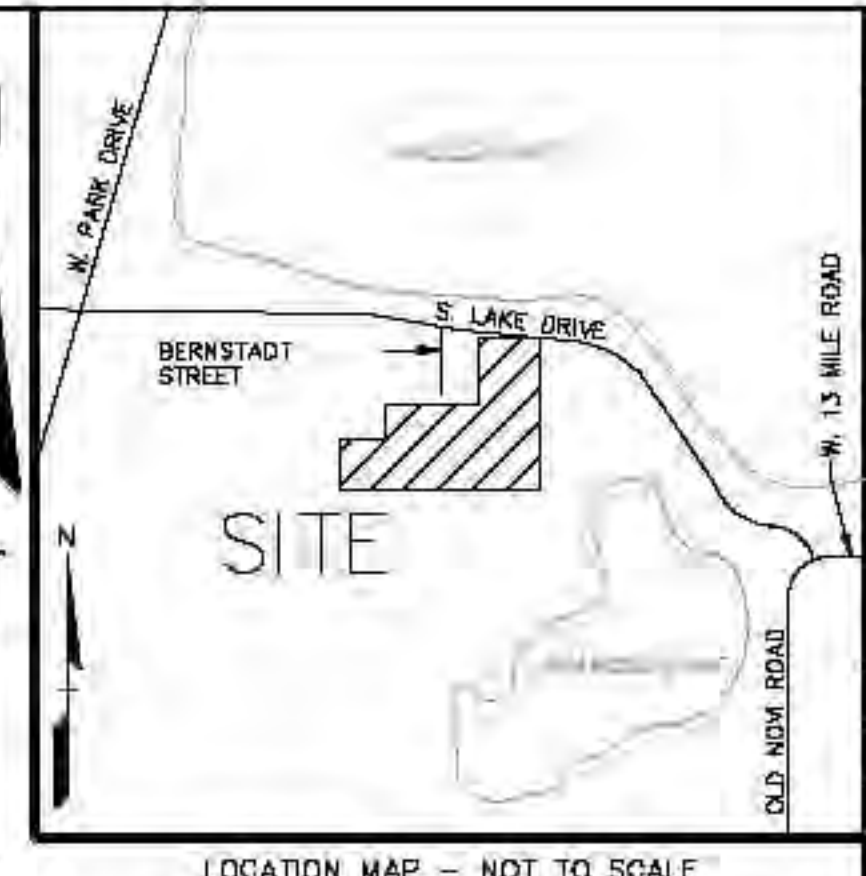
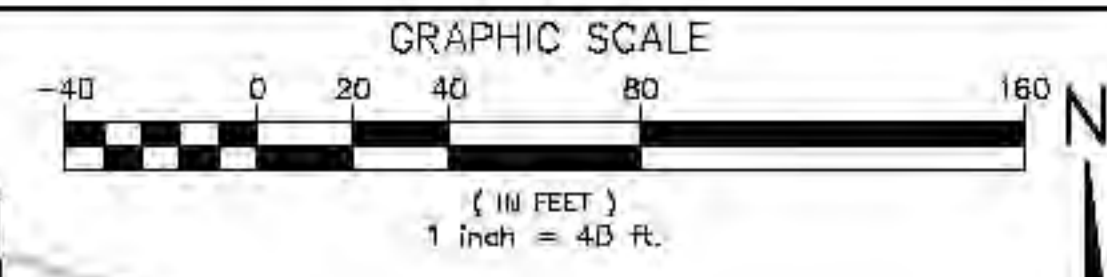
QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACEMENT TREE
3	ALB	Allegheny Serviceberry	<i>Aamelanchier</i>	5-10' Ht.	SSS	Native	Yes
8	NR2	Red Maple	<i>Acer rubrum 'Bowman'</i>	7" Cal.	SSS	Native	
10	JR2	Red Maple	<i>Acer rubrum</i>	5-8' Ht.	SSS	Native	Yes
5	AS1	Legacy Sugar Maple	<i>Acer saccharum 'Legacy'</i>	3" Cal.	SSS	Native	Yes
8	BP4	Paper Birch	<i>Betula papyrifera</i>	8-12' Ht.	SSS	Native	Yes
8	CA1	American Hornbeam	<i>Carolinae caroliniana</i>	3" Cal.	SSS	Native	
15	CD8	Eastern Redbud	<i>Cercis canadensis</i>	5-10' Ht.	SSS	Native	Yes
11	GT1	Skyline Honeylocust	<i>Gleditsia inaequalis 'Skyline'</i>	7" Cal.	SSS	Native	Yes
7	LT3	Tulip Tree	<i>Liriodendron tulipifera</i>	3" Cal.	SSS	Native	Yes
2	MP3	Positive Crab	<i>Malus 'Positive'</i>	3" Cal.	SSS	Non-Native	
8	MT2	Sugar Tree Crab	<i>Malus 'Sugar Tree'</i>	3" Cal.	SSS	Non-Native	
8	PC1	American Planetree	<i>Platanus occidentalis</i>	3" Cal.	SSS	Native	Yes
0	DP1	Royal Prince Oak	<i>Quercus robur 'Royal Prince Long'</i>	3" Cal.	SSS	Non-Native	
2	QM3	Burr Oak	<i>Quercus macrocarpa</i>	3" Cal.	SSS	Native	Yes
5	QR3	Red Oak	<i>Quercus rubra</i>	3" Cal.	SSS	Native	Yes
5	QW1	Swamp White Oak	<i>Quercus bicolor</i>	3" Cal.	SSS	Native	Yes
11	TR1	Boulevard Linden	<i>Tilia americana 'Boulevard'</i>	3" Cal.	SSS	Non-Native	Yes
3	UA1	Valley Forge Elm	<i>Ulmus americana 'Valley Forge'</i>	3" Cal.	SSS	Native	

EVERGREEN PLANT LIST:

11	PN6	Black Hill Spruce	<i>Picea glauca 'SARASOT'</i>	8' Ht.	SSS	Native	Yes
11	PG6	White Spruce	<i>Picea glauca</i>	8' Ht.	SSS	Native	Yes
15	PS8	Eastern White pine	<i>Pinus strobus</i>	8' Ht.	SSS	Native	Yes

SHRUB PLANT LIST:

QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT
10	AR36	Black Chokeberry	<i>Aronia melanocarpa</i>	36" Ht.	Coat	Native
20	CS26	Red Twig Dogwood	<i>Cornus sericea</i>	36" Ht.	Coat	Native
17	VS6	Wormsberry	<i>Ilex verticillata</i>	36" Ht.	Coat	Native
38	VO36	Artemisia Vitaeformis	<i>Alopecurus pratensis</i>	36" Ht.	Coat	Native



REVISIONS

NO.	BY	DATE	DESCRIPTION
1	JK	05/15/17	PRELIMINARY SUBMITTAL
2	JK	05/15/17	PRELIMINARY SUBMITTAL
3	JK	05/15/17	PRELIMINARY SUBMITTAL
4	JK	05/15/17	PRELIMINARY SUBMITTAL
5	JK	05/15/17	PRELIMINARY SUBMITTAL
6	JK	05/15/17	PRELIMINARY SUBMITTAL
7	JK	05/15/17	PRELIMINARY SUBMITTAL
8	JK	05/15/17	PRELIMINARY SUBMITTAL
9	JK	05/15/17	PRELIMINARY SUBMITTAL
10	JK	05/15/17	PRELIMINARY SUBMITTAL
11	JK	05/15/17	PRELIMINARY SUBMITTAL
12	JK	05/15/17	PRELIMINARY SUBMITTAL
13	JK	05/15/17	PRELIMINARY SUBMITTAL
14	JK	05/15/17	PRELIMINARY SUBMITTAL
15	JK	05/15/17	PRELIMINARY SUBMITTAL

CAUTION!
THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND STRUCTURES ARE SHOWN ON THIS DRAWING FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF NOVI AND THE STATE OF MICHIGAN PRIOR TO CONSTRUCTION.

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KEY

- INTERIOR PARKING LOT TREES
- GREENBELT TREES
- PERIMETER PARKING TREES
- BASIN TREES
- NATIVE DETENTION BASIN SHRUBS
- SHRUBS PERENNIALS AND FOUNDATION PLANTINGS - TO BE IRRIGATED. SEE SHEET L-1.1 FOR ENLARGED LANDSCAPE PLAN
- IRRIGATED SEED LAWN AT AREAS ADJACENT TO COMMUNITY BLDG. ALL OTHER LAWN TO BE IRRIGATED THROUGH ESTABLISHMENT ONLY.
- NATIVE HYDROPHILE PLANTS, TYP.
- STORMWATER SEED MIX WITH STAKED EROSION MAT BY CARONO NATIVE PLANT NURSERY PHONE: 574.536.2412
- SLOPE STABILIZATION SEED MIX WITH STAKED EROSION MAT BY CARONO NATIVE PLANT NURSERY PHONE: 574.536.2412
- EMERGENT WETLAND SEED MIX WITH STAKED EROSION MAT BY CARONO NATIVE PLANT NURSERY PHONE: 574.536.2412
- REPLACEMENT TREES WEST BUFFER TREES REQUESTED BY CITY
- EXISTING TREES
- TREE PROTECT TO REMAIN FENCING

PLANT MATERIAL SHALL NOT BE PLANTED WITHIN 4' OF PROPERTY LINE

LANDSCAPE CALCULATION:
PER CITY OF NOVI ZONING ORDINANCE - ZONED OST DISTRICT
FOUNTAIN OFFICE PARK, NOV. 2016-312
PER AMENDED LANDSCAPE ORDINANCE AFFECTIVE 6/22/17

INTERIOR PARKING LOT LANDSCAPE REQUIRED:
A. 5' OF PAVED AREA UNDER 50,000 SF = 29,106 X 7.5' = 2,183 SF
B. 5' OF ADDITIONAL PAVED AREA OVER 50,000 SF = 0 X 1' = 0 SF
4" DEC. 2,183 + 0 = 2,183 SF ISLANDS REQUIRED
E. C/200 2,183/200 = 11 CANOPY TREES REQUIRED

PROVIDED: 3,979 SF OF INTERIOR LANDSCAPE ISLAND AREA
20 - 3" CAL. DEC. CANOPY TREES

PARKING LOT PERIMETER REQUIRED:
1 TREE PER 35 LF OF PAVED VEHICULAR PERIMETER
788 LF OF PARKING LOT / 35 LF = 23 TREES REQUIRED

PROPOSED: 23 - 3" CAL. DEC. TREES

GREENBELT REQUIRED:
1 LARGE DEC OR EVG / 40 LF OF FRONTAGE
1 SUB CANOPY DEC / 25 LF OF FRONTAGE
1 CANOPY DEC TREE / 35 LF BETWEEN SIDEWALK & CURB
S LAKE DR: 285-217-34 = 488 LF / 40 = 12 LARGE DEC OR EVG REQUIRED
488 LF / 25 = 19 SUB CANOPY TREES
488 LF / 35 = 13 CANOPY TREES BETWEEN WALK AND CURB

PROPOSED: 5 EVG. TREES, 7 EXISTING TREES
19 SUB CANOPY TREES
0 CANOPY TREES BETWEEN WALK AND CURB

COULD NOT MEET 13 CANOPY TREES BETWEEN WALK AND CURB DUE TO OVERHEAD UTILITIES AND EXISTING STREET GRADE, VARIANCE REQUESTED.

FOUNDATION PLANTINGS REQUIRED: LF OF COMMUNITY CENTER BUILDING LESS PAVED ACCESS POINTS X 8
330 LF BUILDING PERIMETER X 8 = 2,640 SF INTERIOR SITE LANDSCAPING
PROPOSED: 4,021 SF OF INTERIOR SITE LANDSCAPING (INCLUDES THE SWALE AREA IN FRONT OF THE BLDG.)

DETENTION BASIN LANDSCAPE REQUIRED: CLUSTERS OF LARGE NATIVE SHRUBS IN A DENSE PLANTING AT AND ABOVE THE HIGH WATER ELEVATION OF THE BASIN COVERING 70-75% OF BASIN RIM AREA AT THE HIGH WATER ELEVATION USING A MINIMUM OF THREE SPECIES OF SHRUBS. BOTTOM OF BASIN PLANTED IN NATIVE GRASSES/ GROUNDCOVER REACHING A MIN. 10" IN HT.

PROVIDED: 18, 3" CAL. DEC. TREES, AND 18, 8" EVG. AND SHRUBS

TREE REPLACEMENT REQUIRED:
1 REPLACEMENT : 8" < 11" = 7 TREES (7 REPLACEMENT REQUIRED)
2 REPLACEMENT : >11" < 20" = 28 TREES (52 REPLACEMENT REQUIRED)
3 REPLACEMENT : >20" < 28" = 2 TREES (6 REPLACEMENT REQUIRED)

TOTAL REQUIRED REPLACEMENT TREES = 65

PROVIDED: 65 REPLACEMENT TREES

LANDSCAPE WAIVER
A LANDSCAPE WAIVER IS BEING REQUESTED TO PROVIDE NO R.O.W. LANDSCAPE BERM SINCE THIS WOULD OBSCURE THE VIEW OF WALLED LAKE FROM THE NEW COMMUNITY BUILDING.

A LANDSCAPE WAIVER IS BEING REQUESTED TO PROVIDE NO R.O.W. TREES, FOR THE 13 CANOPY TREES BETWEEN THE SIDEWALK AND CURB, DUE TO OVERHEAD UTILITIES, EASEMENTS, AND SIGHT LINES.

ADDITIONAL PLANTINGS ARE PROVIDED BETWEEN THE BUILDING, PARKING AND ADJACENT RESIDENTIAL AT WEST PROPERTY LINE.

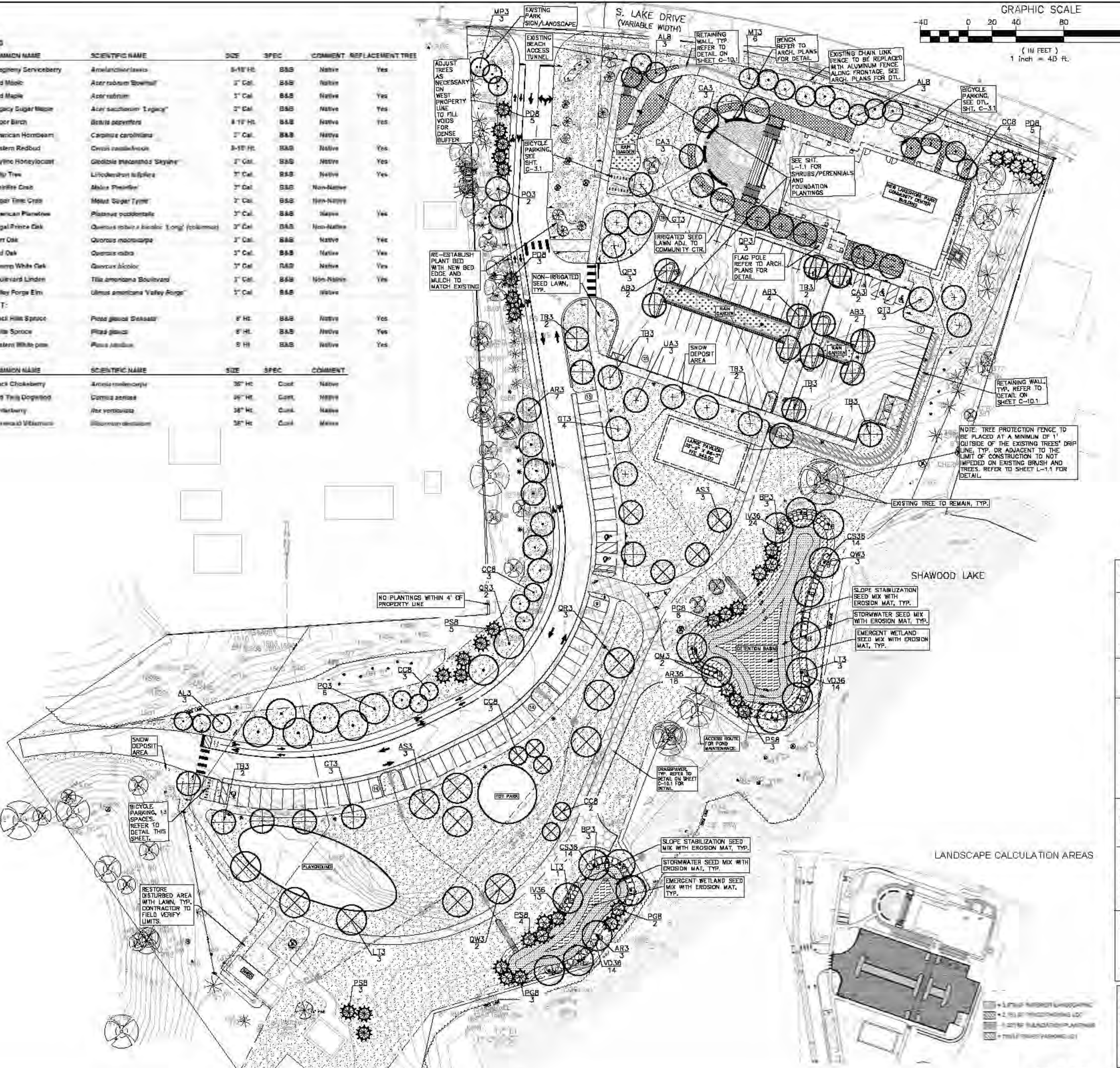
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LANDSCAPE PLAN
NOVI LAKESHORE PARK
PART OF THE SE WADP SECTION 3, T. 1 N., R. 8 E.,
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DESIGNED BY: JLE
DRAWN BY: DN
CHECKED BY: LW
SURVEYED BY: SS
DATE: 05/15/17

ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO. 2016-308
SCALE: 1" = 40'
DRAWING NUMBER: L-1.0



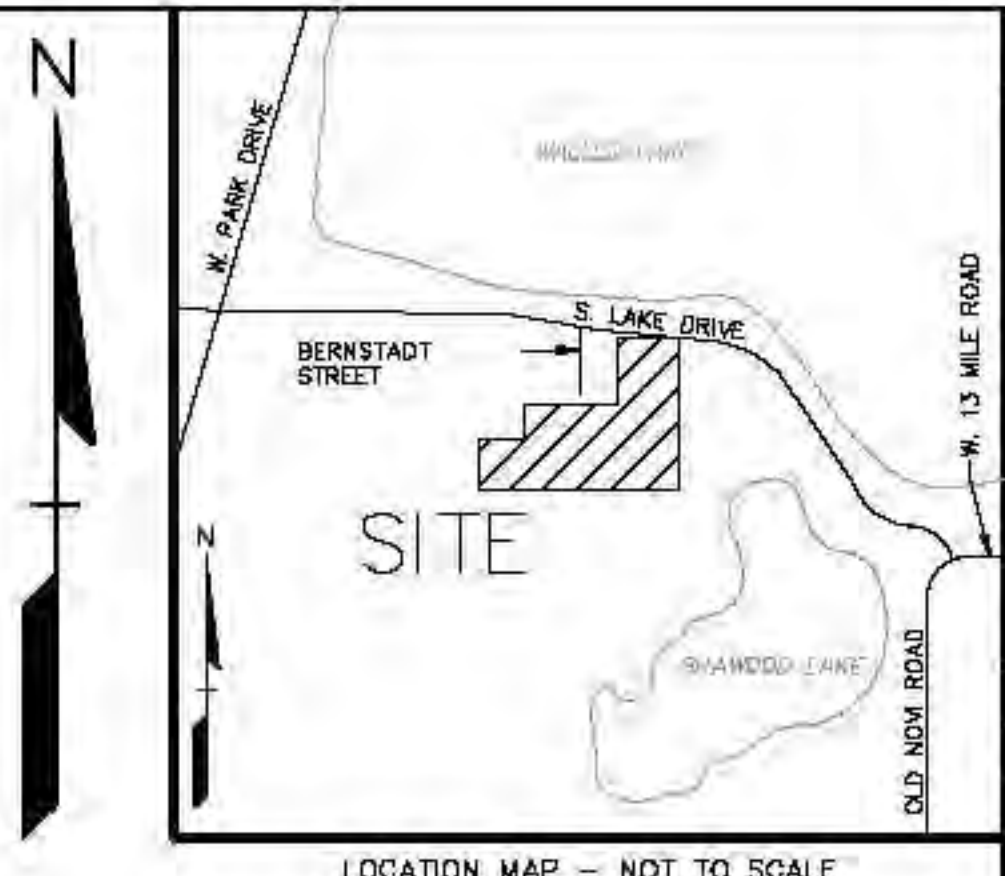
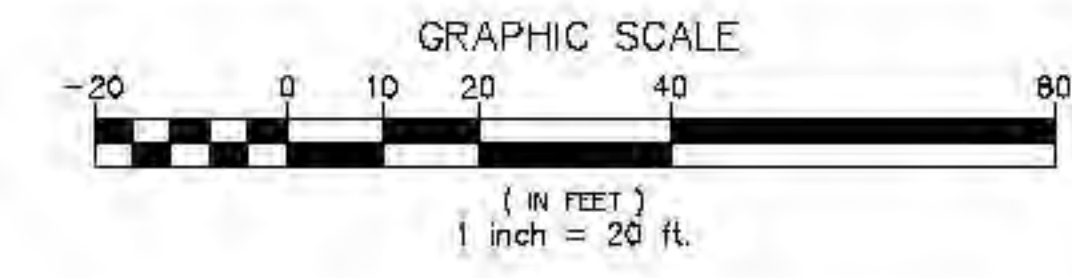
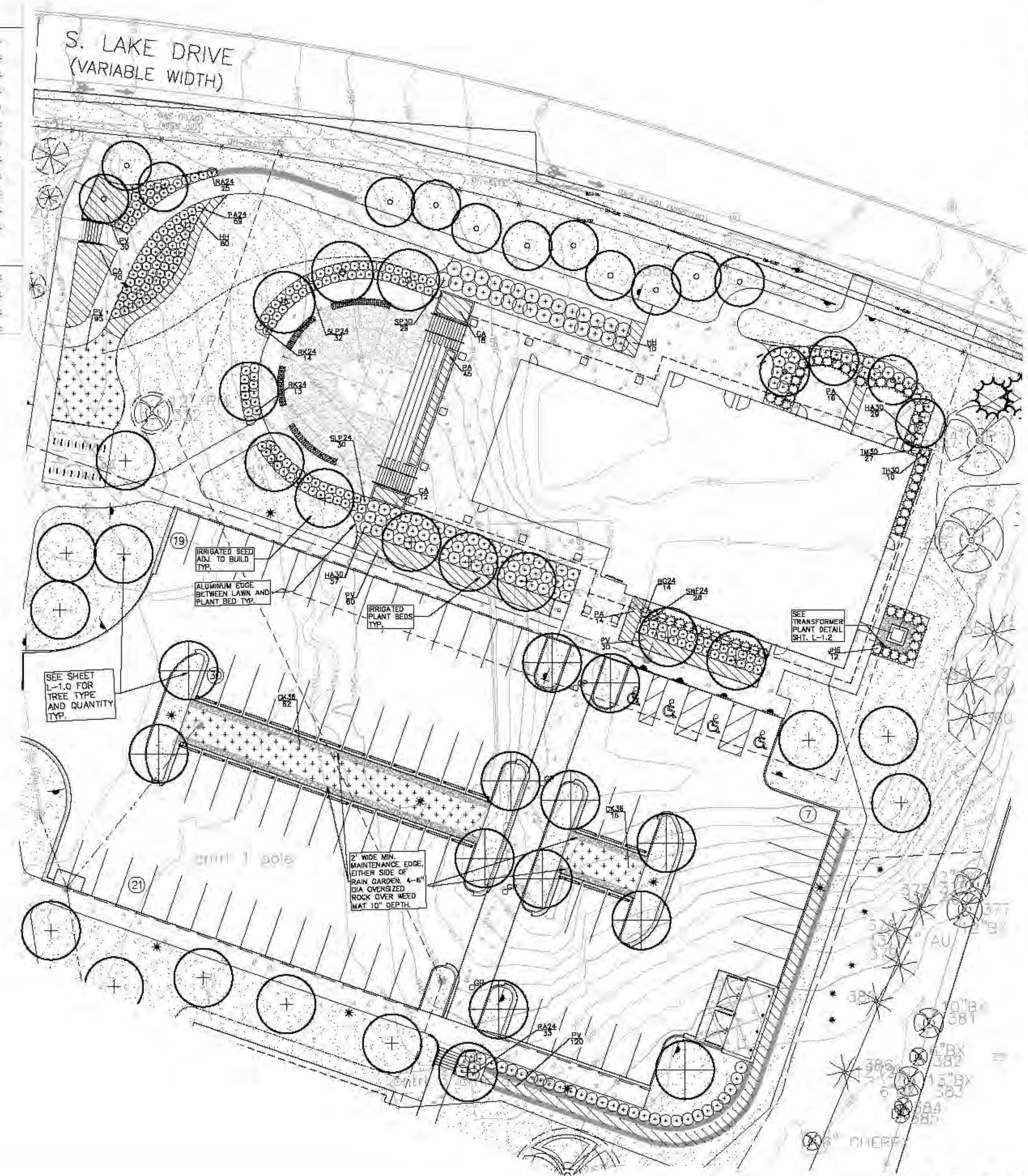
NOT FOR CONSTRUCTION

SHRUB PLANT LIST: L-1.1

QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC
14	BG24	Green Velvet Boxwood	Buxus x 'Green Velvet'	24" HL	Cont.
78	CK26	Kelsey Dwarf Dogwood	Cornus sericea 'Kelsey'	38" HL	Cont.
82	HA30	Incredible Hydrangea	Hydrangea arborescens 'Abetwo'	30" HL	Cont.
88	PA24	Abbottwood Potentilla	Potentilla fruticosa 'Abbottwood'	24" HL	Cont.
12	JH8	Hetz Columbian Juniper	Juniperus chinensis 'Hetz Columbian'	5'	B&B
58	RA24	Gro Low Sumac	Rhus aromatica 'Gro-Low'	24" HL	Cont.
27	RK24	Pink Knockout Rose	Rosa 'Pink Knock Out'	24" HL	Cont.
82	SLP24	Little Princess Japanese Spirea	Spiraea japonica 'Little Princess'	24" HL	Cont.
28	SNF24	Neon Flash Spirea	Spiraea japonica 'Neon Flash'	24" HL	Cont.
28	SP50	Miss Kim Lilac	Syringa patris 'Miss Kim'	30" HL	Cont.
10	TK30	Hicks Yew	Taxus x media 'Hicks'	30" HL	Cont.
27	TM24	Dense Yew	Taxus x media 'Densiflora'	24" HL	Cont.

PERENNIAL PLANT LIST:

QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC
100	CA	Feather Reed Grass	Calamagrostis x acutiflora 'Karl Foerster'	1 Gal.	Cont.
80	HR	Happy Returns Daylily	Hemerocallis 'Happy Returns'	1 Gal.	Cont.
75	FA	Dwarf Fountain Grass	Pennisetum alopecuroides 'Framin'	1 Gal.	Cont.
335	PV	Shenandoah Switch Grass	Panicum virgatum 'Shenandoah'	1 Gal.	Cont.



KEY:

- ⊕ - TREES - SEE SHEET L-1.0 FOR TYPE AND QUANTITY
- - SHRUBS
- ▨ - PERENNIALS
- ▨ - IRRIGATED SEED LAWN AT REAR ADJACENT TO COMMUNITY BLDG. ALLOTHER LAWN TO BE IRRIGATED THROUGH ESTABLISHMENT ONLY.
- ▨ - 4-6" DIA. OVERSIZED ROCK OVER WEED FABRIC, 10" DEPTH
- ⊕ - TREES TO REMAIN

PLANT MATERIAL SHALL NOT BE PLANTED WITHIN 4' OF PROPERTY LINE. SHRUBS/PERENNIAL BEDS TO BE IRRIGATED.

SHRUBS/PERENNIALS NOT TO BE PLANTED UNDER OVERHEAD OUTLETS AND DOWNSPUTS TO AVOID WATER'S PLASH ON SHRUBS. FIELD ADJUST AS NECESSARY.

REVISIONS

NO.	BY	DATE	DESCRIPTION
1	BL	SS	SITE PLAN APPROVAL
2	BL	SS	PRELIMINARY SUBMITTAL
3	BL	SS	FINAL SUBMITTAL



CAUTION!
THE LOCATION AND ELEVATIONS OF UTILITIES SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO ONE SHALL BE RESPONSIBLE FOR THE LOCATION AND ELEVATIONS OF UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATIONS OF UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND ELEVATIONS OF UTILITIES PRIOR TO CONSTRUCTION.

CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATIONS OF UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND ELEVATIONS OF UTILITIES PRIOR TO CONSTRUCTION.

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FARMINGTON HILLS, MICHIGAN 48335

**ENLARGED LANDSCAPE PLAN
NOVI LAKESHORE PARK**
PART OF THE SE 1/4 OF SECTION 3, T. 1 N., R. 8 E.,
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

D.E.S. JLE DN LWLLE SUR. P.M. SS
3 PROJECTS: 2016-2018 LAKESHORE PARK-104-TWO-DIMENSIONAL CONSTRUCTION (L-10) LANDSCAPE PLAN-104

ORIGINAL ISSUE DATE:
JUNE 30, 2017

PEA JOB NO. 2016-308

SCALE: 1" = 20'

DRAWING NUMBER:
L-1.0

NOT FOR CONSTRUCTION

GENERAL LANDSCAPING REQUIREMENTS

- 1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1. General procedures and requirements for Site Work
2.0 PRODUCTS - Not Used
3.0 EXECUTION
3.1 PREPARATION
3.1.1 Protection
1. Spillage
A. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
B. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.
2. Erosion Control:
A. Take precautions necessary to prevent erosion and transportation of soil down-slope, to adjacent properties, and into on-site or off-site drainage systems.
B. Develop, install, and maintain an erosion control plan if required by law.
C. Repair and correct damage caused by erosion.
3. Existing Plants And Features
A. Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain.
B. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Landscape Architect.
C. Do not damage other plants and features which are to remain.
3.1.2 If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

LANDSCAPING PREPARATION

- 1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1. General landscape work requirements.
1.2 QUALITY ASSURANCE
1.2.1 Comply with all applicable local, state and federal requirements, regarding materials, methods of work, and disposal of excess and waste materials.
1.2.2 Obtain and pay for all required inspections, permits, and fees.
1.2.3 Provide notices required by governmental authorities.
1.3 PROJECT CONDITIONS
1.3.1 Locate and identify existing underground and overhead services and utilities within contract limit work areas. [Call Miss Dig: 1-800-482-7171 in Michigan].
1.3.2 Provide adequate means to protect utilities and services designated to remain.
1.3.3 Repair utilities damaged during site work operations at Subcontractor's expense.
1.3.4 When unearthed or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.
1.3.5 Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Subcontractor's expense.
1.3.6 Perform landscape work operations and the removal of debris and materials to ensure minimum interference with streets, walks, and other adjacent facilities.
1.3.7 Obtain governing authorities' written permission when required to close or obstruct streets, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.
1.3.8 Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal.
1.3.9 The General Contractor will occupy the premises and adjacent facilities during the entire period of construction. Perform landscape work operations to minimize conflicts and to facilitate General Contractor's use of the premises and conduct of his normal operations.
1.3.10 Perform landscape preparation work before commencing landscape construction.
1.3.11 Provide necessary barricades, coverings and protection to prevent damage to existing improvements indicated to remain.
1.3.12 Protect existing trees scheduled to remain against injury or damage including cutting, breaking or skimming of roots, trunks or branches, smothering by stockpiled construction materials, excavated materials or vehicular traffic within branch spread.
2.0 PRODUCTS
2.1 MATERIALS/EQUIPMENT
2.1.1 As selected by the General Contractor, except as indicated.
A. Tree protection:
A. Wood fencing - Six foot high.
B. Posts - Steel fence post.
C. Herbicide for lawn restoration - "Round-up" by Monsanto.
3.0 EXECUTION
3.1 EXISTING UTILITIES
3.1.1 Call "MISS DIG" 811 before construction begins. Information on the drawings related to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.
3.2 CLEARING
3.2.1 Locate and suitably identify trees and improvements indicated to remain.
3.2.2 Fencing/soil erosion fence to be installed.
3.2.3 Any equipment that compacts the soil in the areas of existing trees is not allowed.
3.2.4 Protect trees scheduled to remain with 4' high snow fence per plans.

- 3.2.5 No vehicular traffic is permitted beneath drip line at any time. All lawn areas are to be worked by hand.
3.2.6 Clear and grub areas within contract limits as required for site access and execution of the work.
3.2.7 Remove trees, plants, undergrowth, other vegetation and debris, except items indicated to remain.
3.2.8 Treat planting and lawn areas as required with herbicide per manufacturer recommendations to kill existing vegetation prior to planting, seeding and sodding.
3.2.9 Remove stumps and roots to a clear depth of 30" below subgrade. Remove stumps and roots to their full depth within 5'0" of underground structures, utility lines, footings, and paved areas.
3.3 DISPOSAL OF WASTE MATERIALS
3.3.1 Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted.
3.3.2 Maintain disposal routes, clear, clean and free of debris.
3.3.3 On site burning of combustible cleared materials is not permitted.
3.3.4 Upon completion of landscape preparation work, clean areas within contract limits, remove loads and equipment. Site to be clear, clean and free of materials and debris and suitable for site work operations.
3.3.5 Materials, items and equipment not scheduled for reinstallation or salvaged for the General Contractor are the property of the Landscape Contractor. Remove cleared materials from the site as the work progresses. Storage and sale of Landscape Contractor's salvaged items on site is not permitted.

FINISH GRADING AND TOPSOIL PLACEMENT

- 1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1. Perform finish grading and topsoil placement required to prepare site for installation of landscaping as described in Contract Documents.
1.2 SUBMITTALS
1.2.1 Quality Assurance
1. Submit list on imported topsoil and on site stockpiled topsoil by independent licensed testing laboratory prior to use. Imported topsoil shall meet minimum specified requirements and be approved by Landscape Architect prior to use.
2. Provide and pay for testing and inspection during topsoil operations. Laboratory, inspection services, and Soils Engineer shall be acceptable to the Landscape Architect.
3. Submit report stating location of source of imported topsoil and account of recent use.
4. Test for pH factor, mechanical analysis, and percentage of organic content.
B. Submit test reports to General Contractor.
B. Sub-Contractor, or testing agency to make recommendations on type of quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.
1.3 QUALITY ASSURANCE
1.3.1 Participate in pre-installation meeting with Landscape Architect.
1.4 PROJECT CONDITIONS
1.4.1 Also see Landscape Preparation Section.
1.4.2 Protect existing trees, plants, lawns, and other features designated to remain as part of the landscaping work.
1.4.3 Promptly repair damage to adjacent facilities caused by topsoil operations. Cost of repair at Subcontractor's expense.
1.4.4 Promptly notify the General Contractor and Landscape Architect of unexpected subsurface conditions.
2.0 PRODUCTS
2.1 MATERIALS
2.1.1 Topsoil: supplied and stockpiled topsoil proposed for use must meet the testing criteria results specified. Topsoil must conform to adjustments and recommendations from the soil test and by the Landscape Architect.
2.1.2 Existing topsoil: existing topsoil on-site atop site shall be utilized. All processing, cleaning, and preparation of this stored topsoil to render it acceptable for use is the responsibility of the Subcontractor.
2.1.3 Provide additional topsoil as required to complete the job. Topsoil must meet testing criteria results specified.
2.1.4 All processing, cleaning, and preparation of this supplied topsoil to render it acceptable for use is the responsibility of the Subcontractor.
2.1.5 Supplied and stockpiled topsoil, shall be fertile, friable, dark in color and representative of local productive soil, capable of sustaining vigorous plant growth and free of clay lumps, silt, sand, radium, weeds or other foreign matter such as stones of 1" in any dimension, roots, sticks, and other extraneous material; not frozen or muddy. pH of soil range between 5.0 and 7.5
2.1.6 Soil shall not contain more than 2 percent of particles measuring over 2.0 mm in largest size.
2.1.7 Prepared topsoil shall be used in planting mixtures as specified in Trees, Plants, and Ground Cover; all beds prepared as specified.
3.0 EXECUTION
3.1 EXAMINATION
3.1.1 Do not commence work of this Section until grading tolerances specified are met.
3.2 PREPARATION
3.2.1 Prior to grading, dig out weeds from planting areas by their roots and remove from site. Before placing top soil in landscape areas, remove rocks larger than 1 inch in any dimension and foreign matter such as building rubble, wire, cans, sticks, concrete, etc.
3.2.2 Prior to planting topsoil, remove any imported base material present in planting areas down to natural subgrade or other material acceptable to Landscape Architect.
3.2.3 Prior to planting topsoil, remove any imported base material present in planting areas down to natural subgrade or other material acceptable to Landscape Architect.
3.3 PERFORMANCE
3.3.1 Site Tolerances
1. Total Topsoil Depth -
A. Lawn And Groundcover Planting Areas - 3 inches minimum compacted.
B. Shrub Planting Areas - 12 inches minimum throughout entire shrub bed area.
2. Elevation of Topsoil relative to walks or curbs -
A. Seeded Lawn Areas - 1/4 inch below
B. Sodded Lawn Areas - 1 1/2 inches below
C. Shrub And Ground Cover Areas - 3 inches below
3.3.2 Do not expose or damage existing shrub or tree roots.
3.3.3 Redistribute approved existing top soil stored on site as a result of rough grading. Remove organic material, rocks and clods greater than 1 inch in any dimension, and other objectionable materials. Provide additional approved imported topsoil required for specified topsoil depth and bring surface to specified elevation relative to walk or curb.

- 3.3.4 For trees, shrubs, ground cover beds and plant mix for beds see Exterior Plants section.
3.3.5 Provide earth berming where indicated on Plans.
3.3.6 Berming to be free flowing in shape and design, as indicated, and to blend into existing grades gradually so that the toe of slope is not readily visible. Landscape Architect or General Contractor's representative to verify final contouring before planting.
3.3.7 Regardless of finish grading elevations indicated, it is intended that grading be such that proper drainage of surface water away from buildings will occur and that no low areas are created to allow ponding. Subcontractor to consult the General Contractor and Landscape Architect regarding variations in grade elevations before rough grading is completed.
3.3.8 Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch per ft minimum unless otherwise noted. High point of finish grade of building foundation shall be 8 inches minimum below finish floor level. Direct surface drainage in manner indicated on drawings by molding surface to facilitate natural run-off of water. Fill low spots and pockets with top soil and grade to drain properly.
3.3.9 Rake off topsoil to remove clods, rocks, weeds, and debris.
3.3.10 Create and shape area to bring surface to true uniform planes free from irregularities and to provide proper drainage and slopes per plans.
3.4 CLEANING
3.4.1 Upon completion of topsoil operations, clean areas within contract limits, remove tools, equipment, and haul all excess topsoil off-site. Site shall be clear, clean, free of debris, and suitable for site work operations.

LAWN SEEDING

- 1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1. Furnish and install seeded lawn as described in Contract Documents.
1.2 SUBMITTALS
1.2.1 Submit seed vendor's certification for required grass seed mixture, including percentage by weight, and percentage of purity, germination, and weed seed for each grass species.
1.3 DELIVERY AND STORAGE
1.3.1 Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.
1.4 PROJECT CONDITIONS
1.4.1 See landscape preparation section.
1.4.2 Work notification: Notify Landscape Architect of General Contractor's representative at least seven (7) working days prior to start of seeding operation.
1.4.3 Protect existing utilities, paving, and other facilities from damage caused by seeding operations.
1.4.4 Perform seeding work only after planting and other work affecting ground surface has been completed.
1.4.5 Provide hose and lawn watering equipment as required.
1.4.6 The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components damaged during seeding operations at the Sub-Contractor's expense.
1.5 WARRANTY
1.5.1 See Landscape Maintenance and Warranty Section.
2.0 PRODUCTS
2.1 MATERIALS
2.1.1 Topsoil for Seeded Areas: See Topsoil Placement and Drawings.
2.1.2 Lawn seeded grass: Fresh, clean and new crop seed mixture. Mixed by approved methods.
2.1.3 Seed mixture composed of the following varieties, mixed to the specified proportions by weight and tested to minimum percentages of purity and germination.
2.1.4 Irrigated Lawn Seed Mixture proportioned by volume as indicated below:
SEED TYPE PROPORTION PURITY GERMINATION
Kentucky Bluegrass 50% 90% 75%
Penn Lawn Fescue 20% 90% 80%
Annual Ryegrass 20% 90% 90%
2.1.5 Non-Irrigated Seed Mixture proportioned by volume as indicated below:
SEED TYPE PROPORTION PURITY GERMINATION
Penn Lawn Fescue 60% 90% 85%
Kentucky 24 Common Bluegrass 20% 90% 90%
Pennina Perennial Rye 20% 90% 90%
2.1.6 Fertilizer: granular, non burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.
2.1.7 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20X mesh sieve.
2.1.8 Straw Mulch: Used in crimping process only. Clean oat or wheat straw well seasoned before baling, free from mature seed-bearing status, or roots of prohibited or noxious weeds.
2.1.9 Water: Free of substance harmful to seed growth. Hoses or other methods to transportation furnished by Sub Contractor.
3.0 EXECUTION
3.1 INSPECTION
3.1.1 Landscape Architect or General Contractor's representative must approve finish surface, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.
3.2 PREPARATION
3.2.1 SURFACE PREPARATION
1. Seven days maximum prior to seeding, -
A. Treat Lawn areas if required with "Round-Up" by Monsanto, per label direction to kill existing vegetation prior to seeding.
B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.
C. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.
D. Grade lawn areas to smooth, free draining even surface with a laser, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
E. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more than 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.
F. Apply fertilizer to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (4.5 lbs / acre).
G. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
2. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established.
3. Damage to seeded area resulting from erosion to be repaired by Sub Contractor.
4. In event Sub Contractor does not establish dense lawn during first germination period, return to project to reseed and reseed to establish dense lawn.
5. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn area to produce a dense turf, as specified.
3.4 CLEANING
3.4.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.

- H. After lawn areas have been prepared, take no heavy objects over them except lawn rollers.
I. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs according to soil type.
J. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.
K. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.
3.3 INSTALLATION
3.3.1 SEEDING
1. Seed lawn only between April 1, and June 1, and fall seeding between August 15, and October 15, or at such other times acceptable to Landscape Architect.
2. Seed immediately after preparation of bed. Seed indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
3. Perform seeding operations when the soil is dry and when the winds do not exceed five(5) miles per hour velocity.
4. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two (2) directions, at right angles to each other.
5. Sow seed at a rate of 300 lbs./acre.
6. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/2" of soil. Roll with light lawn roller.
7. Provide soil erosion planting mat where grade conditions required to stabilize the planting area.
3.3.2 HYDRD-SEEDING
1. Hydro-seeding: the application of grass seed and a wood cellulose fiber mulch (instead grass seed) be accomplished in one operation by use of an approved spraying machine.
A. Mix seed, fertilizer, and wood cellulose fiber in required amount of water to produce a homogeneous slurry. Add wood cellulose fiber after seed, water, and fertilizer have been thoroughly mixed and apply at the rate of 200 pounds per acre dry weight.
B. For hydro-seeding, wood cellulose fiber shall be used. Silva-Fiber Mulch by Weyerhaeuser Company, Tacoma, WA (800-443-9179).
C. Hydraulically spray material on ground to form a uniform cover impregnated with grass seed.
D. Immediately following application of slurry mix, make separate application of wood cellulose mulch at the rate of 1,000 pounds, dry weight, per acre.
E. Apply cover so that rainfall or applied water will percolate to underlying soil.
3.3.3 MULCHING
1. Place straw mulch on seeded areas within 24-hours after seeding.
2. Place straw mulch uniformly in a continuous blanket at a rate of 2-1/2 tons per acre, or two (2) 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when acceptable to the Landscape Architect.
3. Crimp straw into soil by use of a "crimper". Two passes in alternate direction required. Alternative methods on areas too small for crimper must be approved by the Landscape Architect or Owner's Representative.
3.3.4 ESTABLISH LAWN
1. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established.
2. Damage to seeded area resulting from erosion to be repaired by Sub Contractor.
3. In event Sub Contractor does not establish dense lawn during first germination period, return to project to reseed and reseed to establish dense lawn.
4. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn area to produce a dense turf, as specified.
3.4 CLEANING
3.4.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.

- 3.7 FERTILIZATION
3.7.1 Apply fertilizer to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (4.5 lbs / acre).
3.7.2 Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
3.7.3 After lawn areas have been prepared, take no heavy objects over them except lawn rollers.
3.7.4 After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs.
3.7.5 Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.
3.7.6 Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.
3.7.7 Dampen dry soil prior to seeding.
3.8 INSTALLATION
3.8.1 Sodding:
1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips. Do not overlap strips. Stagger strips to offset joints in adjacent course. Remove excess sod to avoid offsetting of adjacent courses. Provide sod pad flush with adjacent curbs, sidewalks, drains, and seeded areas.
2. Do not lay dormant sod or install sod on saturated, frozen soil.
3. Install initial row of sod in a straight line, beginning at the bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and tightly against previously installed row.
4. Peg sod on slopes greater than 1 to 1 or in cantilever of grades to prevent slippage at a rate of 2 stakes per yard of sod.
5. Water sod thoroughly with a fine spray immediately after laying to obtain moisture penetration through sod into top 4 inches of topsoil.
6. Roll with light lawn roller in two directions perpendicular to each other to ensure contact with sub grade.
7. Install sod at indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
8. Damage to sodded area resulting from erosion to be repaired by Subcontractor.
3.9 CLEANING
3.9.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.
END OF SECTION

- 3.7.8 Fertilizer: granular, non burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.
3.7.9 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20X mesh sieve.
3.7.10 Straw Mulch: Used in crimping process only. Clean oat or wheat straw well seasoned before baling, free from mature seed-bearing status, or roots of prohibited or noxious weeds.
3.7.11 Water: Free of substance harmful to seed growth. Hoses or other methods to transportation furnished by Sub Contractor.
3.0 EXECUTION
3.1 INSPECTION
3.1.1 Landscape Architect or General Contractor's representative must approve finish surface, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.
3.2 PREPARATION
3.2.1 SURFACE PREPARATION
1. Seven days maximum prior to seeding, -
A. Treat Lawn areas if required with "Round-Up" by Monsanto, per label direction to kill existing vegetation prior to seeding.
B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.
C. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.
D. Grade lawn areas to smooth, free draining even surface with a laser, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
E. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more than 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.
F. Apply fertilizer to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (4.5 lbs / acre).
G. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
2. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established.
3. Damage to seeded area resulting from erosion to be repaired by Sub Contractor.
4. In event Sub Contractor does not establish dense lawn during first germination period, return to project to reseed and reseed to establish dense lawn.
5. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn area to produce a dense turf, as specified.
3.4 CLEANING
3.4.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.

- 3.7 FERTILIZATION
3.7.1 Apply fertilizer to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (4.5 lbs / acre).
3.7.2 Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
3.7.3 After lawn areas have been prepared, take no heavy objects over them except lawn rollers.
3.7.4 After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs.
3.7.5 Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.
3.7.6 Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.
3.7.7 Dampen dry soil prior to seeding.
3.8 INSTALLATION
3.8.1 Sodding:
1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips. Do not overlap strips. Stagger strips to offset joints in adjacent course. Remove excess sod to avoid offsetting of adjacent courses. Provide sod pad flush with adjacent curbs, sidewalks, drains, and seeded areas.
2. Do not lay dormant sod or install sod on saturated, frozen soil.
3. Install initial row of sod in a straight line, beginning at the bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and tightly against previously installed row.
4. Peg sod on slopes greater than 1 to 1 or in cantilever of grades to prevent slippage at a rate of 2 stakes per yard of sod.
5. Water sod thoroughly with a fine spray immediately after laying to obtain moisture penetration through sod into top 4 inches of topsoil.
6. Roll with light lawn roller in two directions perpendicular to each other to ensure contact with sub grade.
7. Install sod at indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
8. Damage to sodded area resulting from erosion to be repaired by Subcontractor.
3.9 CLEANING
3.9.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.
END OF SECTION

- 1.5.6 Provide hose and lawn watering equipment as required.
1.5.7 The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components damaged during seeding operations at the Subcontractor's expense.
1.6 WARRANTY
1.6.1 See Landscape Maintenance and Warranty Section.
2.0 PRODUCTS
2.1 MATERIALS
2.1.1 Sod: An "approved" nursery grown blend of improved Kentucky Bluegrass varieties.
2.1.2 Sod containing Common Bermuda grass, Quackgrass, Johnsongrass, Paspalum, Nutsedge, Nutsedge, Canada Thistle, Timothy, Bentgrass, Wild Garlic, Ground Ivy, Perennial Sorrel, or Bransgrass weeds will not be acceptable.
2.1.3 Sod shall be rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, and free of weeds, undesirable grasses, stones, roots, thatch, and extraneous material; viable and capable of growth and development when planted.
2.1.4 Furnish sod, machine stripped in square pads or strips not more than 3'-0" long, uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before shipping.
2.1.5 Fertilizer: granular, non burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.
2.1.6 Type A starter fertilizer containing 20% nitrogen, 12% phosphoric acid, and 8% potash by weight or similar approved composition.
2.1.7 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20X mesh sieve.
2.1.8 Stakes: softwood, 3/4" x 2" long.
2.1.9 Water: Free of substance harmful to seed growth. Hoses or other methods to transportation furnished by Sub Contractor.
2.1.10 Topsoil: see Topsoil Placement section.
3.0 EXECUTION
3.1 INSPECTION
3.1.1 Landscape Architect or General Contractor's representative must approve finish surface, grades, topsoil quality and depth. Do not start sodding work until unsatisfactory conditions are corrected.
3.2 PREPARATION
3.2.1 Surface Preparation:
1. Seven days maximum prior to sodding, -
a. Treat Lawn areas if required with herbicide per manufacturer recommendations to kill existing vegetation prior to sodding.
b. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.
c. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.
d. Grade lawn areas to smooth, free draining even surface with a laser, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
e. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more than 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.
f. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (4.5 lbs / acre).
g. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
h. After lawn areas have been prepared, take no heavy objects over them except lawn rollers.
i. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs.
j. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.
k. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to sodding.
l. Dampen dry soil prior to sodding.
3.3 INSTALLATION
3.3.1 Sodding:
1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips. Do not overlap strips. Stagger strips to offset joints in adjacent course. Remove excess sod to avoid offsetting of adjacent courses. Provide sod pad flush with adjacent curbs, sidewalks, drains, and seeded areas.
2. Do not lay dormant sod or install sod on saturated, frozen soil.
3. Install initial row of sod in a straight line, beginning at the bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and tightly against previously installed row.
4. Peg sod on slopes greater than 1 to 1 or in cantilever of grades to prevent slippage at a rate of 2 stakes per yard of sod.
5. Water sod thoroughly with a fine spray immediately after laying to obtain moisture penetration through sod into top 4 inches of topsoil.
6. Roll with light lawn roller in two directions perpendicular to each other to ensure contact with sub grade.
7. Install sod at indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
8. Damage to sodded area resulting from erosion to be repaired by Subcontractor.
3.4 CLEANING
3.4.1 Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.
3.5 MAINTENANCE
3.5.1 See Landscape Maintenance and Warranty Section.
3.6 ACCEPTANCE
3.6.1 See Landscape Maintenance and Warranty Section.
END OF SECTION

Table with 4 columns: REVISIONS, DATE, BY, FOR. Contains revision history.



CAUTION! THE LOCATION AND ELEVATIONS OF UTILITIES... CALL BEFORE YOU DIG CALL 811

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NSA ARCHITECTS, ENGINEERS, PLANNERS LANDSCAPE SPECIFICATIONS NOVILAKESHORE PARK CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

ORIGINAL ISSUE DATE: JUNE 30, 2017 PEA JOB NO. 2016-308 SCALE: N/A DRAWING NUMBER: L-2.1

NOT FOR CONSTRUCTION

EXTERIOR PLANTS

1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1.1.2 Furnish and install landscaping plants as described in Contract Documents.
1.2 QUALITY ASSURANCE
1.2.1 Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature...

4. Plants planted in rows shall be matched in form. (See specimen stock).
5. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.
6. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.
7. Evergreen trees shall be unshaded and branches to the ground.
8. Shrubs and small plants shall meet the requirements for spread and height indicated on the drawings.
9. Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.
10. Bare root trees are not acceptable.
11. Provide plant materials from licensed nursery or grower.
12.1 Bare root plants, dug with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being paddled immediately after they are dug or packed in moist straw or peat moss.
12.1.3 Container grown stock grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.
1. No plants shall be loose in the container.
2. Container stock shall not be root bound.
3. Single stemmed or thin plants will not be accepted.
4. Side branches shall be generous, well twigged, and the plant as a whole well bushed to the ground.
5. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.
2.1.4 Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root systems (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.
2.1.5 Specimen stock of all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branching density.
1. Matched plantings shall be obtained from the same nursery and, preferably from the same row or line. All specimen material will be approved by the Landscape Architect at nursery.
2.1.6 Topsoil for planting mix: fertile, fibrous, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well drained arable site, reasonably free from clay lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials with acidity range of between pH 5.0 for arborescent plants.
2.1.7 Peat moss: brown to black in color, weed and seed free granulated raw peat.
1. Provide ASTM D2607 sphagnum peat moss with a pH below 5.0 for arborescent plants.
2.1.8 Planting mixture Type A - trees: standard planting backfill shall be a mixture of 1/3 peat moss (incorporated from plant pits), 1/3 topsoil, and 1/3 sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's requirements. Follow planting details.
2.1.9 Planting mixture Type B for perennial flowers, groundcover beds, and arborescent plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 peat. All existing soil shall be excavated and removed. Adding fertilizer types "A" and "B" to mixture per manufacturer's requirements. Follow planting details. Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.
2.1.10 Plant fertilizer Type A to be "Drimarure" applied per manufacturer recommendations.
2.1.11 Plant fertilizer Type B to be "14-14-14" Apply per manufacturer recommendations.
2.1.12 Bone Meal - 5 lbs. per cubic yard of soil mixes.
2.1.13 Limes to be ground dolomite limestone, ninety-five (95%) percent passing through #100 mesh screen. Use to adjust soil pH only, under direction of Landscape Architect.
2.1.14 Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine aggregate.
2.1.15 Anti-Desiccant: protective film emulsion providing a protective film over plant surfaces, permeable to permit transpiration. Mixed and applied in accordance with Manufacturer's instructions.
2.1.16 Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size, shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges, humps, or depressions.
2.1.17 Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.
2.1.18 Stakes for staking: Hardwood, 2" x 2" x 8'-0" long. Stakes for guying: Hardwood, 2" x 2" x 36" long.
2.1.19 Guying/staking wire: No. 10 or 12 gauge galvanized wire. For large trees use turnbuckles and heavier gauge wire.
2.1.20 Turnbuckles: galvanized steel of size and gauge required to provide tensile strength equal to that of the wire. Turnbuckle opening shall be at least 3".
2.1.21 Staking and Guying Hoses: two-ply reinforced black garden hose not less than 1 1/2" diameter.
2.1.22 Tree wrap: standard waterproof tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, banded together with capstan.
2.1.23 Twine: two-ply jute material.
2.2 MEASUREMENTS
2.2.1 Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.
2.2.2 The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
2.2.3 Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest direction would be classified as 12 inch stock.
2.2.4 Plants properly trimmed and transplanted should measure some in every direction.
2.2.5 Measure caliper of trees 6 inches above surface of ground.
2.2.6 Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
2.2.7 Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:
1. If complying with Contract Document requirements in all other respects.
2. If at no additional cost to Owner.
3. If sizes of roots or balls are increased proportionately.
2.2.8 The height of the trees, specified by height, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated on the drawings.
3.0 EXECUTION
3.1 INSPECTION
3.1.1 Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting

work until unsatisfactory conditions are corrected.
3.1.2 Individual plant locations shall be staked on the project site by the Landscape Contractor and approved by the Landscape Architect before any planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the General Contractor / Owner.
3.1.3 Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.
3.2 TIME OF PLANTING
3.2.1 Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.
3.2.2 Deciduous material: Plant deciduous materials in a dormant condition, if deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant prior to planting operation.
3.2.3 Planting times other than those indicated must be acceptable to the Landscape Architect.
3.3 PREPARATION
3.3.1 General: See Landscape Preparation Section.
3.3.2 Vegetation Existing
1. Strip existing grass and weeds, including roots from all bed areas leaving the soil surface one (1") inch below finish grade.
2. Herbicide: as required to prepare areas for new planting applied to all ground cover, evergreen and shrubbery beds and all mulch areas before application of preemergence herbicide, per manufacturer's recommendations. Clean area of all dead material after five (5) days.
3. Pre-Emergence Herbicide: applied per manufacturer recommendations to some areas where "herbicide" has been applied and to planting bed areas, after area is cleared of dead vegetation.
4. Herbicides to be applied by licensed applicator as required by the State.
5. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".
6. Roughen sides of excavations.
7. Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.
3.3.3 Ground Cover Beds, Perennial Flower Beds, and Arborescent Plant Beds
1. Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B". Ground Cover shall be planted after bed has been backfilled with plant mix and mulched. Plant ground cover through mulch and into plant mix.
3.3.4 Moss Shrub Beds / Hedge Beds
1. Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".
3.3.5 Annual Flower Beds
1. Excavate existing soil to 8" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to an 8" depth with premixed planting mixture "Type B".
3.4 INSTALLATION
3.4.1 Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.
3.4.2 Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.
3.4.3 See drawings for planting details.
3.4.4 If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape Architect.
3.4.5 Set plant material in the planting pit to proper grade and alignment.
1. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure.
2. Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.
3. No filling will be permitted around the trunks or stems.
4. Do not cover top of root ball with soil.
5. Backfill pit with planting mixture. Do not use frozen or muddy mixture for backfilling.
6. Form a ring of soil around the edge of the planting pit to retain water.
3.4.6 After balled and wrapped plants are set, tamp planting mixture around of balls and fill all voids.
3.4.7 Remove all burlap, ropes, and wires from top 1/3 of balls.
3.4.8 Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 8" of planting bed.
3.4.9 Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.
3.4.10 Water immediately after planting.
3.4.11 Apply pre-emergent herbicide to bed areas per manufacturer's recommendations before mulching.
3.5 MULCHING
3.5.1 Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.
3.5.2 Mulch shall not be placed in contact with trunks or stems.
3.5.3 Mulch ground cover beds with shredded bark mulch 1" to 2" deep prior to planting.
3.5.4 Plant ground cover through mulch.
3.6 WRAPPING, GUYING AND STAKING
3.6.1 Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.
3.6.2 Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.
3.6.3 Stake deciduous trees under 4" caliper. Stake evergreen trees under 6"-0" tall and over with metal fence post, three (3) per tree.
3.6.4 Stake/guy all trees immediately after installation. When high winds or other conditions which may affect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.
3.6.5 Guy deciduous trees 4" caliper and over. Stake evergreen trees 6"-0" tall and over with metal fence post, three (3) per tree.
3.6.6 All work shall be acceptable to the Landscape Architect/Owner's representative.

3.7 PRUNING
3.7.1 Remove or cut back broken, damaged, and unsymmetrical growth of new wood.
3.7.2 Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud at a distance of not less than 1/4 the diameter of the supporting branch. Make cut on an angle.
3.7.3 Prune evergreens only to remove broken or damaged branches.
3.8 MAINTENANCE
3.8.1 See Landscape Maintenance and Warranty Standards.
3.9 CLEANING
3.9.1 Perform cleaning during installation of the work and upon completion of the work. Remove from all site areas materials, soil, debris, and equipment. Repair damage resulting from planting operations.
END OF SECTION
LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS
1.0 GENERAL
1.1 SUMMARY
1.1.1 Includes But Not Limited To
1. Provide maintenance for new landscaping as described in Contract Documents.
2. The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's Representative and Landscape Architect.
2.0 PRODUCTS - Not Used
3.0 EXECUTION
3.1 PERFORMANCE
3.1.1 Acceptance of Installation
1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.
a. Following the acceptance inspection a punch list will be issued by the Landscape Architect.
b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.
c. At the time of acceptance all plant material shall be of vigorous health.
d. It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion.
e. If there is plant material less prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost. These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty period, as outlined below.
2. Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's Representative and Landscape Architect provided work ordered for inspection is complete, including maintenance as required.
3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of the work completed to date.
3.1.2 Project Warranty
1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.
2. The Landscape Subcontractor shall guarantee trees, shrubs, ground cover beds and seeded or sodded areas through construction and for a period of one (1) year after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or incidents which are beyond Landscape Subcontractor's control.
3.1.3 Maintenance During One (1) Year Project Warranty
1. To insure guarantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Period.
a. Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unhealthy condition, or having lost natural shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee.
b. Prior to any replacements, Landscape Subcontractor shall review individual plants in question with Landscape Architect to determine reason for plant demise.
2. Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and planting procedures to receive approval of replacement materials by Landscape Architect.
3. Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape Architect.
4. Areas damaged as a result of replacement operation are to be restored by Landscape Subcontractor at no cost to the General Contractor or Landscape Architect.
5. The Landscape Subcontractor shall be responsible for watering all plantings through the warranty period and shall keep guy wires taut, raise tree balls which settle, turn and apply sprays as necessary to keep the plantings free of disease and insects until the end of the warranty period.
6. The Landscape Subcontractor shall remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition.
a. Rejected plants and materials shall be removed promptly.
b. Replacements shall be made during the following normal planting schedule.
c. Trees and shrubs which are in doubt shall be replaced, unless, in the opinion of the Landscape Architect, it is advisable to extend Project Warranty Period for full growing season.
7. The Landscape Contractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no later than December 1, during the one (1) year project warranty.
8. The first spring after plant installation the contractor shall check all trees to insure twine has rotted from around the trunk. If twine is still present, it shall be removed and disposed of off-site.
9. All stakes, guy wires, tree wrap paper, dead twigs and branches shall be removed from tree and plant materials at the end of this warranty period.

3.1.4 Maintenance of Seeded Lawn Areas
1. The Landscape Subcontractor shall maintain seeded lawn areas.
a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than one (1) foot of area up to a maximum of 3% of the total seeded lawn area is established.
b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of what season the seed was sown.
2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows). When lawn reaches 3" in height it shall be cut to 2" in height.
3. The Owner assumes cutting responsibilities following the Acceptance of Installation of the seeded lawn.
4. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.
3.1.5 Maintenance of Sodded Lawn Areas
1. The Landscape Subcontractor shall maintain sodded lawn areas.
a. Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and rodent until a full uniform, smooth stand of sod is knitted to topsoil and accepted by the Landscape Architect or his or her representative.
b. Water sod thoroughly, as required to establish proper rooting.
c. Repair, rework, and reseed all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.
d. Mow lawn areas once as soon as sod has rooted sufficiently and knitted to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).
e. The Owner assumes mowing responsibilities following the Acceptance of Installation of the sodded lawn.
2. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all sodded lawn maintenance responsibilities.
3.1.6 Final Acceptance Upon Conclusion of the Warranty Period
1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect and Owner's Representative shall be present.
2. After the inspection for final acceptance, a punch list will be issued by the Landscape Architect. Upon completion of all punch list items, the Landscape Architect and the Owner's Representative shall reinspect the project and issue a Written Statement of Final Acceptance.
END OF SECTION
NOTE: The Owners may at their option elect to utilize a Construction Manager in lieu of a General Contractor for all matters pertaining to these specifications and the site work.

Table with 4 columns: REVISIONS, NO., DATE, DESCRIPTION. Contains revision entries for drawing changes.



CAUTION! THE LOCATION AND ELEVATION OF ALL PLANTS AND MATERIALS SHOWN ON THESE DRAWINGS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OF THESE DIMENSIONS OR LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATION OF ALL PLANTS AND MATERIALS PRIOR TO THE START OF CONSTRUCTION. CONSTRUCTION CONTRACTOR WAIVES THEIR RIGHTS TO BE CONSIDERED A SUCCESSOR CONTRACTOR FOR THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES.

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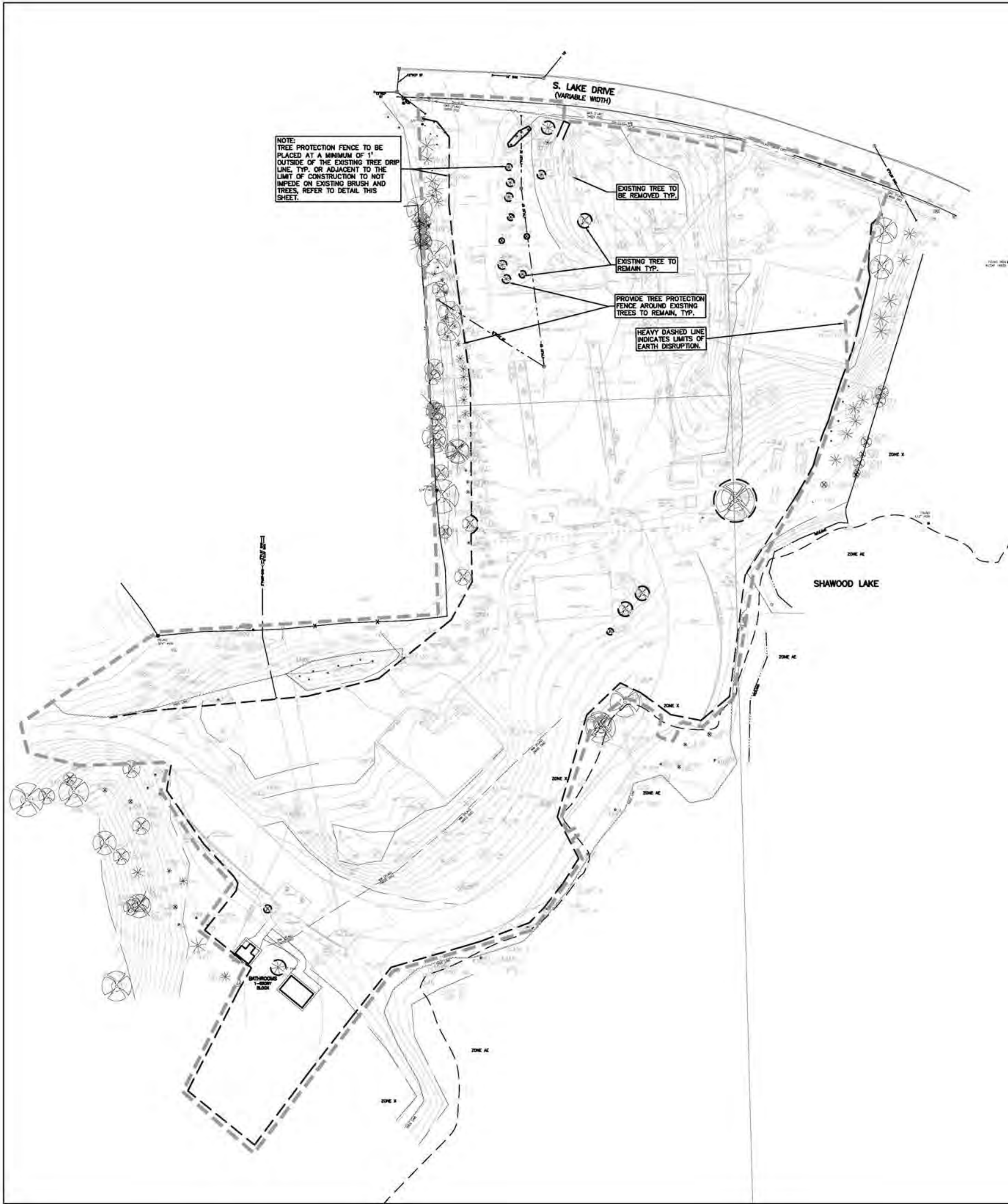
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NSA ARCHITECTS, ENGINEERS, PLANNERS LANDSCAPE SPECIFICATIONS NOVI LAKESHORE PARK CITY OF NOVI, OAKLAND COUNTY, MICHIGAN. Includes project details and drawing information.

ORIGINAL ISSUE DATE: JUNE 30, 2017 PEA JOB NO. 2016-308 SCALE: N/A DRAWING NUMBER: L-2.2

NOT FOR CONSTRUCTION



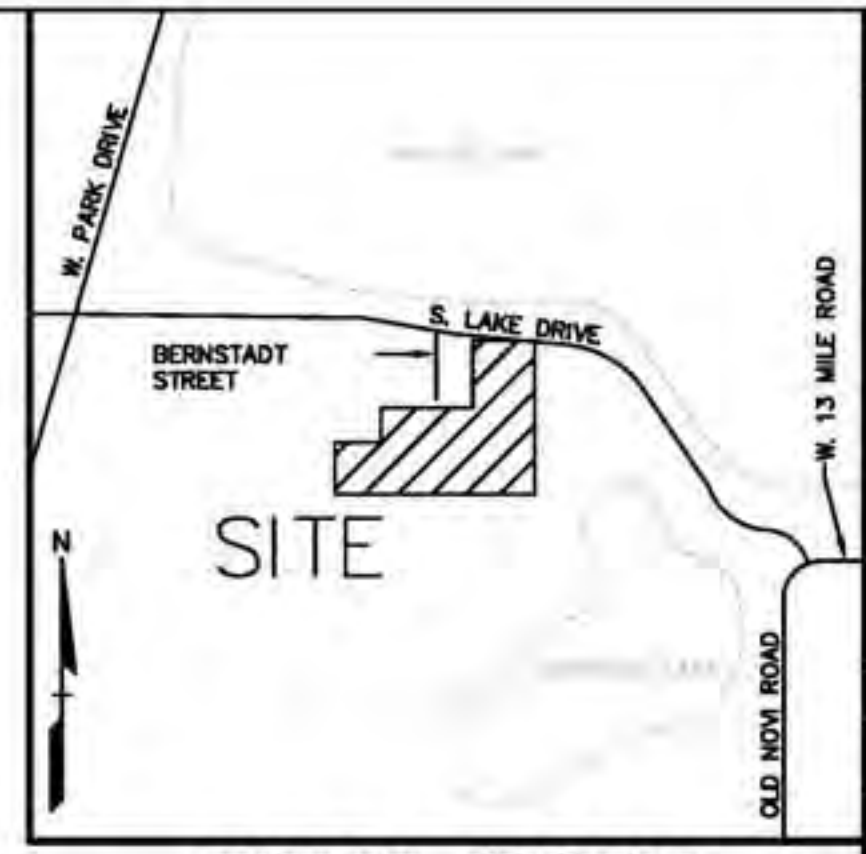
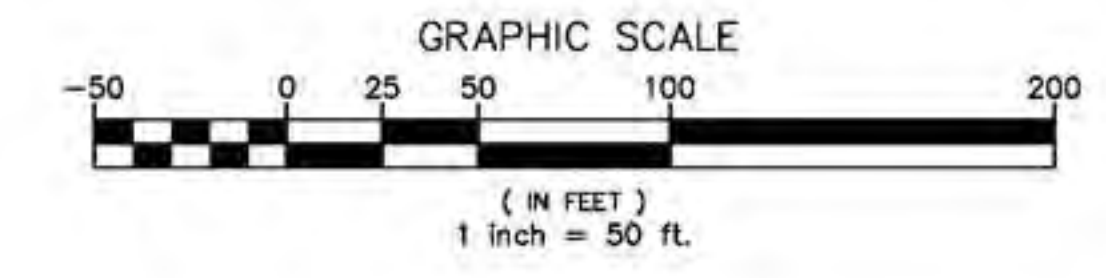
NOTE: TREE PROTECTION FENCE TO BE PLACED AT A MINIMUM OF 1' OUTSIDE OF THE EXISTING TREE DRIP LINE, TYP. OR ADJACENT TO THE LIMIT OF CONSTRUCTION TO NOT IMPEDE ON EXISTING BRUSH AND TREES, REFER TO DETAIL THIS SHEET.

EXISTING TREE TO BE REMOVED TYP.

EXISTING TREE TO REMAIN TYP.

PROVIDE TREE PROTECTION FENCE AROUND EXISTING TREES TO REMAIN TYP.

HEAVY DASHED LINE INDICATES LIMITS OF EARTH DISRUPTION.



TREE REPLACEMENT CALCULATIONS:

TREE REPLACEMENT REQUIRED:
 1 REPLACEMENT : 8" < 11" = 7 TREES (7 REPLACEMENT REQUIRED)
 2 REPLACEMENT : >11" < 20" = 26 TREES (52 REPLACEMENT REQUIRED)
 3 REPLACEMENT : >20" < 29" = 2 TREES (8 REPLACEMENT REQUIRED)
 TOTAL TREES REMOVED = 35
 TOTAL REQUIRED REPLACEMENT TREES = 65

PROVIDED: 65 REPLACEMENT TREES, SEE SHEET L-1.0 (EXISTING TREES THAT ARE DEAD, VERY POOR OR POOR CONDITION, ARE EXEMPT FROM REPLACEMENT)

PROVIDED: IF THERE IS NOT ADEQUATE SPACE FOR REPLACEMENT TREES ON SITE, TREE REPLACEMENT WILL BE DONE VIA CONTRIBUTION TO THE CITY OF NOVI TREE REPLACEMENT FUND.

SEE SHEET T-1.1 FOR EXISTING TREE LIST



WETLAND/WOODLAND NOTES:

THERE IS NO IMPACT TO THE REGULATED WETLANDS AND WOODLANDS ON SITE, NO MITIGATION REQUIRED.

REPLACEMENT MATERIAL SHALL BE LOCATED NOT WITHIN 10' OF BUILT STRUCTURES OR EDGES OF UTILITY EASEMENTS, OVER UNDERGROUND STRUCTURES/UTILITIES, OR WITHIN ASSOCIATED EASEMENTS. SEE SHEET L-1.0 FOR REPLACEMENTS

TREE PROTECTION WILL BE ERRECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.

NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN/HOLDING, BUT NOT LIMITED TO PLACING SOILS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN DRIP LINES.

GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINE OF PROTECTED TREES.

DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY REMAINING TREE.

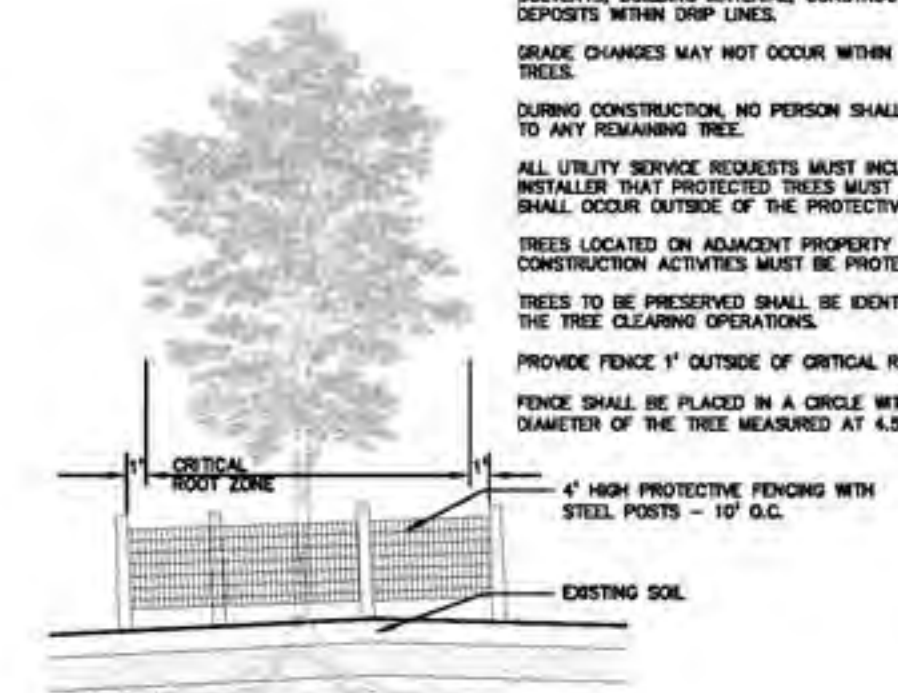
ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.

TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.

TREES TO BE PRESERVED SHALL BE IDENTIFIED WITH FLAGGING PRIOR TO THE TREE CLEARING OPERATIONS.

PROVIDE FENCE 1' OUTSIDE OF CRITICAL ROOT ZONE OF TREE.

FENCE SHALL BE PLACED IN A CIRCLE WITH A RADIUS OF 1' PER 1" DIAMETER OF THE TREE MEASURED AT 4.5' ABOVE GROUND.



TREE PROTECTION DETAIL
NOT TO SCALE

NO.	DATE	DESCRIPTION
1	07-25-17	SITE PLAN APPROVAL
2	08-30-17	PRELIMINARY SUBMITTAL
3	09-15-17	REVISION



CAUTION!
THE LOCATION AND EVALUATION OF EXISTING PROTECTED TREES IS BASED ON THE DRAWING AND FIELD APPROXIMATE TO THE BEST OF OUR KNOWLEDGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND EVALUATION OF EXISTING PROTECTED TREES PRIOR TO THE START OF CONSTRUCTION.

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NSA ARCHITECTS, ENGINEERS, PLANNERS
25761 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

TREE PRESERVATION PLAN
NOVI LAKESHORE PARK
PART OF THE SE 1/4 OF SECTION 3, T. 1 N. R. 8 E
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: JLE DN LW/LLE SUR P.M. SS
DATE: 06/30/2017

ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO. 2016-308
SCALE: 1" = 50'
DRAWING NUMBER: T-1.0

NOT FOR CONSTRUCTION

NOI #	DATE	TYPE	STATUS	COMMENTS	REMARKS	DATE	BY	REVISIONS
221	01	18	AS	Aspen Pine	Prunella	EX	MM	1
222	01	12	AS	Aspen Pine	Prunella	EX	MM	1
223	01	12	AS	Aspen Pine	Prunella	EX	MM	1
224	01	12	AS	Aspen Pine	Prunella	EX	MM	1
225	01	12	AS	Aspen Pine	Prunella	EX	MM	1
226	01	12	AS	Aspen Pine	Prunella	EX	MM	1
227	01	12	AS	Aspen Pine	Prunella	EX	MM	1
228	01	12	AS	Aspen Pine	Prunella	EX	MM	1
229	01	12	AS	Aspen Pine	Prunella	EX	MM	1
230	01	12	AS	Aspen Pine	Prunella	EX	MM	1
231	01	12	AS	Aspen Pine	Prunella	EX	MM	1
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233	01	12	AS	Aspen Pine	Prunella	EX	MM	1
234	01	12	AS	Aspen Pine	Prunella	EX	MM	1
235	01	12	AS	Aspen Pine	Prunella	EX	MM	1
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261	01	12	AS	Aspen Pine	Prunella	EX	MM	1
262	01	12	AS	Aspen Pine	Prunella	EX	MM	1
263	01	12	AS	Aspen Pine	Prunella	EX	MM	1
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NOTE: BOLD = TREE TO BE SAVED
REGULAR PRINT = TO BE REMOVED

TREES REMOVED BY DBH:
1 REPLACEMENT : 8" < 11" = 7 TREES
2 REPLACEMENT : 11" < 20" = 26 TREES
3 REPLACEMENT : 20" < 29" = 2 TREES
TOTAL TREES REMOVED = 35
SEE SHEET L-1.0 FOR TREE REPLACEMENTS
EXISTING TREES THAT ARE DEAD, VERY POOR OR POOR
CONDITION, UNDER 8", ARE EXEMPT FROM REPLACEMENT

REVISIONS

NO.	DATE	BY	DESCRIPTION
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CAUTION!

THE LOCATION AND EXISTENCE OF UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND UTILITIES.

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NSA ARCHITECTS, ENGINEERS, PLANNERS

23761 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

EXISTING TREE LIST

NOVI LAKESHORE PARK

PART OF THE SE 1/4 OF SECTION 3, T 1 N, R 8 E
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DATE: 01/12/17
BY: SS

ORIGINAL ISSUE DATE:
JUNE 30, 2017

PEA JOB NO. 2016-308

SCALE: 1/4" = 1'

DRAWING NUMBER:
<

Revised Sheets C-3.0 - C3.1 Submitted August 11, 2017 - Updated Survey Results

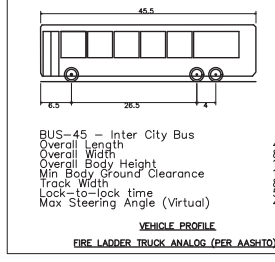
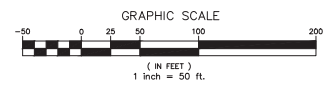
LEGAL DESCRIPTION:
(PER CITY OF NOV MI TAX RECORDS)

LAND IN THE CITY OF NOV, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS PART OF THE SOUTH FRACTIONAL 1/2 OF SECTION 3, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOV, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

PARCEL 1:
IDLEWIRE PARK LOTS 127 TO 141 INCLUSIVE, AS RECORDED IN LIBER 17, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS, 1.69 ACRES.
PARCEL ID: 50-22-03-455-007

PARCEL 2:
THAT PART OF THE SOUTH FRACTIONAL 1/2 OF SEC 3 LYING DIRECTLY SOUTH OF IDLEWIRE PARK SUBDIVISION AS PLATTED IN LIBER 17, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS, 25.80 ACRES.
PARCEL ID: 50-22-03-457-001

PARCEL 3:
THAT PART OF THE SOUTHEAST FRACTIONAL 1/4 OF SEC 3, DESCRIBED AS: BEGINNING AT A POINT DISTANT N 15-30-23 E 11 FT & N 53-14-28 W 200 FT & N 03-02-28 W 80 FT & N 61-13-28 W 170 FT FROM THE NW CORNER OF LOT 30 OF "WALLED LAKE SHORES"; THENCE S 17-01-33 W 298.57 FT TO TRAVERSE POINT "1"; THENCE S 17-01-33 W 11.26 FT TO THE EASTERN BANK OF THE CANAL; THENCE ALONG THE S/D BANK OF THE CANAL S 83-00-00 E 28 FT & S 89-03-54 E 50.93 FT & S 43-43-09 E 50.49 FT & S 38-51-27 E 34.54 FT & S 31-10-00 E 36 FT & S 04-10-00 E 30 FT & S 17-20-00 W 252 FT & S 23-45-00 E 16 FT TO THE SHORE LINE OF SHAWWOOD LAKE; THENCE ALONG THE SHORE LINE OF SAID LAKE S 45-00-00 E 70 FT & S 34-00-00 E 36 FT & S 04-10-00 E 20 FT & S 03-00-00 W 62 FT & S 37-20-00 W 80 FT & S 11-25-00 W 55 FT & S 37-00-00 E 30 FT & S 25 FT & S 27-32-48 W 78.78 FT TO A POINT ON THE SOUTH SECTION LINE; THENCE S 87-07-34 W 12 FT TO TRAVERSE POINT "9" LOCATED S 80-36-36 E 79.02 FT & S 34-49-40 E 185 FT & S 19-25-10 W 264.02 FT & S 18-25-37 W 425.62 FT FROM SAID TRAVERSE POINT "1"; THENCE S 87-07-34 W 25 FT; THENCE N 03-02-23 W 1176.20 FT TO THE SOUTHERLY LINE OF SOUTH LAKE DRIVE; THENCE ALONG THE SOUTHERLY LINE OF SAID ROAD S 71-16-23 E 224.78 FT TO THE POINT OF BEGINNING, 4.27 ACRES.
PARCEL ID: 50-22-03-477-001



CITY OF NOV FIRE DEPARTMENT NOTES:

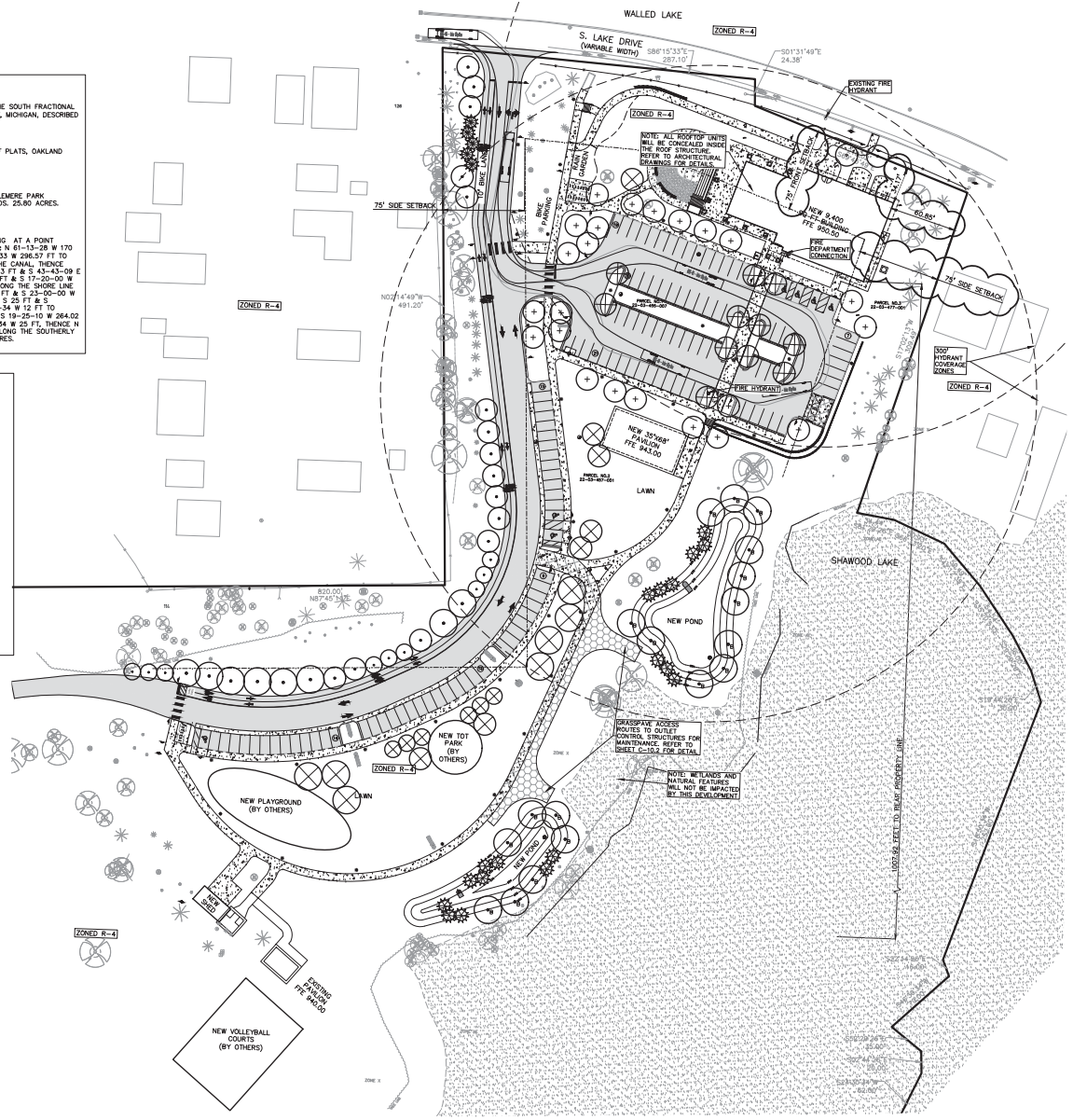
- ALL WEATHER ACCESS ROADS CAPABLE OF SUPPORTING 35 TONS ARE TO BE PROVIDED FOR FIRE APPARATUS PRIOR TO CONSTRUCTION ABOVE THE FOUNDATION.
- ALL WATER MAINS AND FIRE HYDRANTS ARE TO BE INSTALLED AND BE IN SERVICE PRIOR TO CONSTRUCTION ABOVE THE FOUNDATION.
- THE BUILDING ADDRESS IS TO BE POSTED FACING THE STREET THROUGHOUT THE CONSTRUCTION. THE ADDRESS IS TO BE AT LEAST 3 INCHES HIGH ON CONTRASTING BACKGROUND.

IMPERVIOUS AREA:
BUILDING FOOTPRINT AREA = 12,500 SQ.FT.
GRASS/LANDSCAPE AREA = 1,258,444 SQ.FT.
PAVEMENT AREA = 121,308 SQ.FT.
TOTAL PARCEL AREA (50.87 AC) = 1,388,257 SQ.FT.

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERING OF PIPE UNLESS OTHERWISE NOTED.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NOV CURRENT STANDARDS AND REGULATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAYS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC) WITHIN GRADED AND/OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.
- PROVIDE 4" BLUE STRING FOR BARRIER FREE PARKING SPACES AND WHITE FOR BARRIER FREE PARKING SYMBOLS. NOTE THAT WHERE A BARRIER FREE PARKING SPACE ADJUTS A NON-BARRIER FREE SPACE, THE TWO SPACES SHALL BE SEPARATED BY ADJUTING BLUE AND WHITE STRIPES.
- SIGNS NOTED TO BE MOUNTED ON BUILDING FACADE SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET AND A MAXIMUM MOUNTING HEIGHT OF 7 FEET.



SITE DATA TABLE:

SITE AREA: 31.87 ACRES GROSS
ZONING: R4, SINGLE FAMILY RESIDENTIAL
PARCEL ID: 50-22-03-457-001 (25.80 ACRES ±)
50-22-03-455-007 (1.80 ACRES ±)
50-22-02-03-457-001 (4.27 ACRES ±)

PROPOSED USE: PARK WITH COMMUNITY CENTER

BUILDING INFORMATION:
MAXIMUM ALLOWABLE BUILDING HEIGHT = 35 FEET (2.5 STORIES)
PROPOSED BUILDING HEIGHT = 25 FEET

BUILDING FOOTPRINT AREA:
COMMUNITY CENTER: 9,400 SF
LARGE PICNIC PAVILION: 2,449 SF
SMALL PICNIC PAVILION: 656 SF
TOTAL: 12,505 SF

BUILDING LOT COVERAGE = 0.96%

PLANNED OCCUPANCY:
COMMUNITY CENTER: 150 PERSONS
LARGE PAVILION: 60 PERSONS
SMALL PAVILION: 36 PERSONS

TOTAL: 246 PERSONS

SETBACK REQUIREMENTS:
FRONT SETBACK (NORTH): 75 FEET REQUIRED 34.1' PROVIDED
SIDE SETBACK (EAST): 75 FEET REQUIRED 60.85' PROVIDED
SIDE SETBACK (WEST): 75 FEET REQUIRED 258' PROVIDED
SIDE SETBACK (SOUTH): 75 FEET REQUIRED 1007.98' PROVIDED
PARKING SETBACK 25 FEET REQUIRED 135' PROVIDED

PARKING CALCULATIONS:
PRIVATE CLUB OR LODGE HALL = 1 SPACE PER EVERY 3 PERSONS
TOTAL PARKING REQUIRED = 246 / 3 = 82 SPACES
TOTAL EXISTING SPACES REMOVED = 90 SPACES INC. 4 H/C SPACES
TOTAL PROPOSED PARKING SPACES = 129 SPACES INC. 7 H/C SPACES
BICYCLE PARKING REQUIRED = 10% OF TOTAL CAR SPACES = 13 SPACES
BICYCLE PARKING PROVIDED = 50 SPACES

SITE SOILS INFORMATION:
ACCORDING TO THE USDA NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY FOR OAKLAND COUNTY, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:

100 - MARLETTE LOAM, 12 TO 18 PERCENT SLOPES
118 - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES
138 - OSHTEM-BOYER LOAMY SANDS, 0 TO 6 PERCENT SLOPES
130 - OSHTEM-BOYER LOAMY SANDS, 6 TO 12 PERCENT SLOPES
132 - OSHTEM-BOYER LOAMY SANDS, 12 TO 40 PERCENT SLOPES
189 - FOX SANDY LOAM, 1% TO 2% TO 6 PERCENT SLOPES
221 - HOUGHTON AND ADRIAN MUDS
402 - UDORHENTS LOAMY, NEARLY LEVEL
400 - UDORHENTS LOAMY, ROLLING
418 - AGENTS, SANDY, LOAMY, UNGLACIATING
54A - MATHERTON SANDY LOAM, 0 TO 3 PERCENT SLOPES
W - WATER

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REBECCA L. KLEIN
ENGINEER

CAUTION!
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23701 RESEARCH DRIVE
FARMINGTON HILLS, MICHIGAN 48335

OVERALL PLAN
NOVI LAKESHORE PARK
CITY OF NOV, OAKLAND COUNTY, MICHIGAN

DES. BK. DN. BK. SUR. SUR. P.M. OS.
BY: [Signature] DATE: [Date]

ORIGINAL ISSUE DATE: JUNE 30, 2017
PEA JOB NO. 2016-308
SCALE: 1" = 50'
DRAWING NUMBER: C-3.0

NOT FOR CONSTRUCTION

PLANNING REVIEW



PLAN REVIEW CENTER REPORT

August 8, 2017

Planning Review

City of Novi Lakeshore Park – Building

JSP 17-43

Petitioner

NSA Architects, Engineers, Planners on behalf of the City of Novi

Review Type

Preliminary/Final Site Plan

Property Characteristics

Section	3	
Site Location	601 South Lake Drive; West of Old Novi Road and South of South Lake Drive	
Site School District	Walled Lake Consolidated School District / Novi Community School District	
Site Zoning	R-4, Single Family Residential	
Adjoining Zoning	North	R-4, Single Family Residential / Walled Lake
	East	R-4, Single Family Residential
	West	R-4, Single Family Residential
	South	RA, Single Family Residential
Current Site Use	Lakeshore Park	
Adjoining Uses	North	Residential/Walled Lake
	East	Residential
	West	Residential
	South	Open Space
Site Size	32.73 acres	
Plan Date	July 26, 2017 and Revised Property Line Plan Submitted August 11, 2017	

Project Summary

The applicant is proposing an update to Lakeshore Park in the City of Novi including an approximately 9,400 square foot community center, 129-space, paved parking lot, large pavilion, small storage shed addition to the south toilets, and a bike lane to connect to the mountain biking trails.

Recommendation

Approval of the **Preliminary Site Plan is recommended**, but **Final Site Plan is not recommended** at this time. The plan mostly conforms to the requirements of the Zoning Ordinance, with a few deviations listed in this and other review letters. **Planning Commission approval of the Preliminary Site Plan and Storm Water Management Plan is required. Zoning Board of Appeals approval of the three variances is required.**

Ordinance Requirements

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance. **Deviations from the Zoning Ordinance are listed below:**

Ordinance Deviations

1. Planning Commission waivers
 - I. No berm is provided along South Lake Drive. This is supported by staff, although not for the reason given by the applicant.

- II. No street trees are provided along South Lake Drive because there is insufficient room for them between the right-of-way and the road. This waiver is supported by staff.
 - III. Some of the foundation landscaping is provided about 8 feet away from the building. This waiver is supported by staff because the walkway around the building prevents the placement of the landscaping right at the foundation.
2. Zoning Board of Appeals Variances
 - I. Front building setback (75 ft. required; 43.5 ft. provided)
 - II. Interior side yard building setback (75 ft. required; 65 ft. provided)
 - III. Location of the bike rack from entrance being served (120 ft. required; ~190 ft. provided)

Please see the attached chart for information pertaining to ordinance requirements. Items in **bold** below must be addressed and incorporated as part of the Final Site Plan submittal:

1. Building setbacks (Sec. 3.6.2.B): For all uses other than single-family or two-family residential, the building setback shall be at least equal to: the height of the main building, 75 ft. or setback for the district (30 ft.), whichever is greater. Therefore, the building setbacks for the district are 75 ft.. from all sides. The applicant is providing 34.17 ft. for the front setback and 60.85 ft. for the interior side yard (east) setback. **Applicant should adjust the building to meet the setbacks or seek a ZBA variance.**
2. Parking Setbacks (Sec. 3.6.2.B): **Provide measurements on the site plan that show the parking setbacks for the proposed parking areas.**
3. Bicycle Parking General Requirements (Sec. 5.16): Bicycle racks should be no farther than 120 ft. from the entrance being served. Applicant is providing ~190 ft. from the main entrance. **Applicant should adjust the location of the bike rack, split the rack so there is a third rack closer to the building, or seek a ZBA variance for the location.**
4. Flagpoles (Sec. 4.191.2.B): Flagpoles are regulated by Planning. **Provide the location of the flagpoles on the site plan, not just the photometric plan. Also, include details on the flagpole lighting proposed.**
5. Lighting Plan (Sec. 5.7.2.A.ii): Specifications for all proposed lighting fixtures should be included on the site plan. **Provide the fixture height, hours of operation, and standard notes (Sec. 5.7.3.B) on the site plan.**
6. Minimum Illumination (Sec. 5.7.3.K): Minimum foot candles at walkways is 0.2 minimum, building entrances frequent use is 1.0 minimum, and building entrances infrequent uses 0.2 minimum. **Provide at least 0.2 minimum at proposed walkways and show illumination levels at building entrances/exits.**

Other Reviews

- a. Engineering Review: **Engineering recommends approval of the Preliminary Site Plan, however does not recommend approval of the Final Site Plan.**
- b. Landscape Review: **Landscape recommends approval of the Preliminary and Final Site Plan.**
- a. Traffic Review: **Traffic recommends approval of the Preliminary Site Plan, however does not recommend approval of the Final Site Plan.**
- b. Facade Review: **Façade recommends a Section 9 Façade Waiver to allow underage of brick and overage of standing seam metal.**
- c. Fire Review: **Fire does not recommend approval of the Final Site Plan as adjustments to the hydrant locations are required.**

NEXT STEP: Planning Commission Meeting

This Site Plan is scheduled to go before Planning Commission for consideration on August 23, 2017. Please provide the following **no later than 12:00pm, August 18, 2017** if you wish to keep the schedule.

1. Original Site Plan submittal in PDF format (maximum of 10MB). **NO CHANGES MADE.**
2. A response letter addressing ALL the comments from ALL the review letters and **a request for waivers as you see fit.**
3. A color rendering of the Site Plan, if any.

Revised Site Plan Submittal

Engineering, Planning, Traffic, and Fire are not recommending approval of the Final Site Plan. Once Planning Commission has reviewed the plans, please provide a Revised Final Site Plan submittal. Refer to each of the review letters for more details. Please submit the following for reconsideration:

1. A site plan revision application
2. 4 copies of revised site plan addressing pending comments from reviews which are currently not recommending approval.
3. Response letter **addressing all comments and refer to sheet numbers where the change is reflected.**

Stamping Set Approval

Stamping sets are still required for this project. After having received all of the review letters from City staff the applicant should make the appropriate changes on the plans and submit **9 size 24" x 36" copies with original signature and original seals**, to the Community Development Department for final Stamping Set approval.

Pre-Construction Meeting

A Pre-Construction meeting is required for this project. Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni (248.347.0430 or smarchioni@cityofnovi.org) for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.347.0484 or kmellem@cityofnovi.org.



Kirsten Mellem, Planner



PLANNING REVIEW CHART

Review Date: August 8, 2017
Review Type: Preliminary Site Plan
Project Name: **JSP17-43: City of Novi Lakeshore Park Building**
Plan Date: July 25, 2017 and Revised Property Line Plan Submitted August 11, 2017
Prepared by: Kirsten Mellem, Planner
E-mail: kmellem@cityofnovi.org; **Phone:** 248.347.0484

Bold To be addressed with the next submittal
Underline To be addressed with final site plan submittal
Bold and Underline Requires Planning Commission and/or City Council Approval
Italics To be noted

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan <i>(adopted August 25, 2010)</i>	Public Park	Public Park	Yes	
Zoning <i>(Effective December 25, 2013)</i>	R-4, One-Family Residential	Same	Yes	
Uses Permitted <i>(Sec.3.1.5)</i>	Publicly owned and operated parks, parkways and outdoor recreational facilities	Public park with community center and associated parking	Yes	<u>Planning Commission approval of the site plan is required</u>
Height, bulk, density, and area limitations (Sec. 3.1.5)				
Maximum Dwelling Unit Density	2.7 DUA	Not Applicable	NA	
Minimum Lot Area <i>(Sec 3.1.5)</i>	12,000 square feet	Not Applicable 31.87 Acres	NA	
Minimum Lot Width <i>(Sec 3.1.5)</i>	90 ft.	Not Applicable	NA	
Building Setbacks (Sec 3.1.5 & 3.6.2.B)				
Front (north)	75 ft. (See 3.6.2.B)	43.5 ft.	No	Applicant is seeking a ZBA variance
Interior Side (east)	75 ft.	65 ft.	No	Applicant is seeking a ZBA variance
Interior Side (west)	75 ft.	258 ft.	Yes	
Rear (south)	75 ft.	1007. ft.	Yes	
Parking Setback (Sec 3.6.2.B)				

Item	Required Code	Proposed	Meets Code	Comments
Front (north)	75 ft. (See 3.6.2.B)	130 ft.	Yes	Provide measurement on site plan
Interior Side (east)	20 ft.	55 ft.	Yes	Provide measurement on site plan
Interior Side (west)	20 ft.	75 ft.	Yes	Provide measurement on site plan
Rear (south)	20 ft.	> 20 ft.	Yes	
Development Standards (Sec 3.1.5)				
Maximum % of Lot Area Covered (By All Buildings) (Sec 3.1.5)	25%	0.96%	Yes	
Minimum Floor Area (Sec 3.1.5)	1,000 sq. ft.	NA	NA	Not a single-family residential use
Building Height (Sec 3.1.5)	35 ft. or 2.5 stories whichever is less	25 ft. proposed	Yes	
Frontage on a Public Street (Sec. 5.12)	No lot or parcel of land shall be used for any purpose permitted by this Ordinance unless said lot or parcel shall front directly upon a public street, unless otherwise provided for in this Ordinance.	Park fronts on South Lake Drive	Yes	
Note to District Standards (Sec 3.6)				
Area Requirements (Sec 3.6.A & Sec. 2.2)	- Lot width shall be measured between two lines where a front setback line intersects with side setback lines. - Distance between side lot lines cannot be less than 90% between the front setback line and the main building.	Not Applicable	NA	

Item	Required Code	Proposed	Meets Code	Comments
<p>Additional Setbacks (Sec 3.6.B)</p>	<p>- For all uses other than single-family or two-family residential, the building setback shall be at least equal to: the height of the main building, 75 ft. or setback for the district (30 ft.), whichever is greater. However, the minimum building setback from access streets may be reduced to fifty (50) feet for fire department structures where quick access to the street network is required.</p> <p>- For all off-street parking lots serving other than single-family residential, the setback from any interior side or rear lot line shall be 20 ft., and the setback from the front and any exterior side lot line shall comply with the building setback required for such uses. Further, for churches there shall be no parking in the front yard.</p> <p>Main Building: 25 ft. Additional: 75 ft. District: 30 ft.</p> <p>75 ft. is the required setback</p> <p>20 ft. is the required parking setback for interior side or rear yards. 75 ft. is the required parking setback for front and exterior side yards.</p>	<p>34.17 ft. setback from north 60.85 ft. setback from the east are proposed</p>	<p>No</p>	<p>Applicant should adjust the building to meet the setbacks or seek a ZBA variance.</p> <p>Provide the measurements for parking setback in a table on the site plan.</p>
<p>Exterior Side yard abutting Streets (Sec 3.6.C)</p>	<p>NA</p>	<p>Side yards abutting residential districts</p>	<p>NA</p>	
<p>Wetland/Water -course Setback</p>	<p>25 ft. from boundary of a wetland and 25 ft. from the ordinary high-water</p>	<p>There are regulated wetlands and woodlands on site.</p>	<p>Yes</p>	

Item	Required Code	Proposed	Meets Code	Comments
(Sec 3.6.M)	mark of a watercourse.			
Parking and Loading Requirements				
Number of Parking Spaces (Sec.5.2.12) <i>Private clubs or lodge halls</i>	1 for each 3 persons allowed within the maximum occupancy load $246/3 = 82$ spaces ITE – City Park Demand: 2.6 spaces per acre $31.87 \times 2.6 = 83$ spaces	129 new spaces proposed	Yes	<i>Planning staff determined that the closest use in our table is a private club and was confirmed with reference to the Institute of Transportation Engineers 4th Edition Parking Generation Manual.</i>
Parking Space Dimensions and Maneuvering Lanes (Sec. 5.3.2)	<ul style="list-style-type: none"> - 90° Parking: 9 ft. x 19 ft. - 24 ft. two way drives - 9 ft. x 17 ft. parking spaces allowed along 7 ft. wide interior sidewalks as long as detail indicates a 4" curb at these locations and along landscaping 	19 ft. x 9 ft. and 17 ft. x 9 ft. proposed	Yes	
Parking stall located adjacent to a parking lot entrance (public/private) (Sec. 5.3.13)	Shall not be located closer than 25 ft. from the street right-of-way line, street easement or sidewalk, whichever is closer	NA	NA	
End Islands (Sec. 5.3.12)	<ul style="list-style-type: none"> - End Islands with landscaping and raised curbs are required at the end of all parking bays that abut traffic circulation aisles. - The end islands shall generally be at least 8 feet wide, have an outside radius of 15 feet, and be constructed 3' shorter than the adjacent parking stall as illustrated in the Zoning Ordinance 	10 ft. wide and 15 ft. radius proposed	Yes	
Barrier Free Spaces <i>Barrier Free Code</i>	101-150 spaces require 5 regular barrier free spaces incl. 1 van accessible	7 barrier free provided; 5 are van accessible	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Barrier Free Space Dimensions <i>Barrier Free Code</i>	<ul style="list-style-type: none"> - 8' wide with an 8' wide access aisle for van accessible spaces - 8' wide with a 5' wide access aisle for regular accessible spaces 	8' with 8' wide aisle 9.5' with 5' aisle 10' with 8' aisle 9' with 6' aisle 10' with 5.5' aisle 9' with 8' aisle	Yes	<i>Applicant meets minimum building code dimensions</i>
Barrier Free Signs <i>Barrier Free Code</i>	One sign for each accessible parking space.	Provided	Yes	
Minimum number of Bicycle Parking <i>(Sec. 5.16.1)</i>	<u>Public Parks:</u> 10% of required or provided automobile spaces, minimum 8 spaces For 129 spaces, 13 bicycle spaces required	14+32=46 spaces provided	Yes	
Bicycle Parking General requirements <i>(Sec. 5.16)</i>	<ul style="list-style-type: none"> - No farther than 120 ft. from the entrance being served - When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations - Spaces to be paved and the bike rack shall be inverted "U" design - Shall be accessible via 6 ft. paved sidewalk 	190 ft. from building Multiple locations proposed Detail provided 7 ft. sidewalks throughout	No	Applicant should move the bike rack closer to the building or seek a ZBA variance
Bicycle Parking Lot layout <i>(Sec 5.16.6)</i>	Parking space width: 6 ft. One tier width: 10 ft. Two tier width: 16 ft. Maneuvering lane width: 4 ft. Parking space depth: 2 ft. single, 2 ½ ft. double	Provided	Yes	
Covered Parking Spaces <i>(Sec. 5.16.4)</i>	Covered bicycle parking space requirement. Unless waived or modified as provided in subsection 5E, when 20 or more bicycle parking spaces are required, twenty-five percent of the bicycle parking spaces shall be covered bicycle parking spaces.	13 required; 46 proposed	NA	<i>Spaces required is under 20</i>

Item	Required Code	Proposed	Meets Code	Comments
Accessory Buildings				
Location (Sec. 4.19.1.B)	Accessory buildings shall not be erected in any required front yard or in any required exterior side yard.	Buildings and structures are located in the rear yard	Yes	
Maximum Area (Sec. 4.19.1.C)	The total floor area of all accessory buildings shall not occupy more than twenty-five (25) percent of any required rear yard.	Garage is the only accessory building	Yes	
Maximum Square Footage (Sec. 4.19.1.E)	R-4, 850 square feet Aggregate of all accessory buildings cannot exceed the ground floor area of the principal building on the parcel.	Toilet and garage addition total 550 sq. ft.	Yes	
Setbacks (Sec. 4.19.1.G)	It shall not be located closer than: <ul style="list-style-type: none"> - ten (10) feet to any main building - six (6) feet to any interior side lot or rear lot line. 		Yes	
Rear Lot Line abuts a ROW (Sec. 4.19.1.H)	In those instances where the rear lot line abuts an alley right-of-way, the accessory building shall be no closer than one (1) foot to such rear lot line.	NA	NA	
Height Restriction (Sec. 4.19.1.I)	A detached accessory building in the R-1 through R-4, RT, RM-1, MH, OS-1, B-1, P-1, and NCC districts shall not exceed one (1) story or fourteen (14) feet in height.	Project is in R-4 Garage is 13'6" in height	Yes	
Number of Structures (Sec. 4.19.1.J)	Not more than two (2) detached accessory buildings shall be permitted on any lot having twenty-one thousand seven hundred eighty (21,780) square feet of area or more.	1 building existing with proposed addition	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Use of detached accessory building (Sec. 4.19.1.K)	Use of any detached accessory building in any Residential, Business or Office district for a use other than the parking and storage of private motor vehicles, tools, recreation equipment or dog houses shall require review and approval by the Zoning Board of Appeals.	Accessory building is for storage of recreation equipment	Yes	
Design (Sec. 4.19.1.L)	All attached and detached accessory buildings in excess of two-hundred (200) square feet shall be designed and constructed of materials and architecture compatible with the principal structure, and shall have a minimum roof pitch of 3/12 and overhangs of no less than six (6) inches.		Yes	<i>Proposed addition is a continuation of existing materials as approved by the Façade Consultant.</i>
Setbacks (Sec. 4.19.2.A)	Accessory structures, except where otherwise permitted and regulated in this Ordinance, shall be located in the rear yard and shall meet the setback requirements of an accessory building.	In rear yard	Yes	
Flagpoles (Sec. 4.19.2.B)	Flagpoles may be located within any required front or exterior side yard. Such poles shall be located no closer to a public right-of-way than one-half (½) the distance between the right-of-way and the principal building.	Proposed on photometric plan, not proposed on site plan Proposed even with the building	Yes?	Show flagpoles on the site plan to confirm compliance. <i>Building permits are required for flagpoles</i>
Canopies (Sec. 4.19.2.C)		NA	NA	
Antennas (Sec. 4.19.2.D)		NA	NA	
Roof top appurtenances Screening (Sec. 4.19.2.E.i)	Roof top appurtenances shall be screened in accordance with applicable facade regulations, and shall not		Yes	<i>Rooftop units are screened within the roof</i>

Item	Required Code	Proposed	Meets Code	Comments
	be visible from any street, road or adjacent property.			
Roof top equipment and wall mounted utility equipment (Sec. 4.19.2.E.ii)	All roof top equipment must be screened and all wall mounted utility equipment must be enclosed and integrated into the design and color of the building		Yes	
Dumpster (Sec 4.19.2.F)	<ul style="list-style-type: none"> - Located in rear yard - Attached to the building or - No closer than 10 ft. from building if not attached - Not located in parking setback - If no setback, then it cannot be any closer than 10 ft. from property line. - Away from Barrier free Spaces 	Yes NA Yes Yes NA Yes	Yes	
Dumpster Enclosure Sec. 21-145. (c) Chapter 21 of City Code of Ordinances Sec. 5.15.1	<ul style="list-style-type: none"> - Screened from public view - A wall or fence 1 ft. higher than height of refuse bin - And no less than 5 ft. on three sides - Posts or bumpers to protect the screening - Hard surface pad - Screening Materials: Masonry, wood or evergreen shrubbery - Matches building facade 	Yes 6 ft. 6 ft. Posts Asphalt? Wood No	No	Dumpster enclosures are regulated by the Façade Ordinance Sec. 5.15 and must match the building materials of the main building.
Solar Collectors (Sec 4.19.2.G)	Freestanding vs. structurally attached	NA	NA	
Outdoor Furnaces (Sec 4.19.2.H)	Outdoor furnaces as defined in Section 2.2 are prohibited and shall not be installed or operated within the City of Novi.	NA	NA	
Fences (Sec. 5.11)				
Fence Location (Sec. 5.11.1.E)	Fences which enclose public or institutional parks, playgrounds, or public landscaped areas,	Proposed 4 ft. height wrought-iron look aluminum fence along frontage, black powder-	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	situated within an area developed with recorded lots shall not exceed 8 ft. in height, measured from the surface of the ground, and shall not obstruct vision to an extent greater than 25% of their total area except that nothing in this subpart shall prevent the erection of fencing for tennis courts, backstops or the like.	coat finish		
Electrical Currents (Sec. 5.11.2.C)	No fence shall carry electrical current or charge of electricity		Yes	
Acceptable Materials (Sec. 5.11.3.A)	Wooden, stone, brick, wrought-iron, or other such non-wire type fencing.	Wrought-iron like, non-wire proposed	Yes	
Maintenance (Sec. 5.11.3.B)	All fences shall comply with applicable provisions of the current City of Novi Property Maintenance Code		Yes	
Uniformity (Sec. 5.11.3.C)	All fences shall be of uniform material(s), finish, and color along a property line of any parcel totaling less than one-hundred fifty (150) feet in length	One type of wrought-iron aluminum fencing is proposed in the front yard	Yes	
Non-Motorized Facilities				
Article XI. Off-Road Non-Motorized Facilities	6 ft. sidewalk is required along all collector and arterials	Existing bike path along S. Lake Drive and no sidewalks within 300 ft.	Yes	
Pedestrian Connectivity	Whether the traffic circulation features within the site and parking areas are designed to assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets	Sidewalks and crosswalks provided along parking bays and within parking lot areas	Yes	
Lighting and Photometric Plan (Sec. 5.7)				
Intent (Sec. 5.7.1)	Establish appropriate minimum levels, prevent unnecessary glare, reduce spillover onto	Photometric and Lighting Plan Provided	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	adjacent properties & reduce unnecessary transmission of light into the night sky			
Lighting Plan (Sec. 5.7.A.i)	Site plan showing location of all existing & proposed buildings, landscaping, streets, drives, parking areas & exterior lighting fixtures	Proposed	Yes	
Building Lighting (Sec. 5.7.2.A.iii)	Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated, illuminance levels of walls and the aiming points of any remote fixtures.	Proposed	Yes	
Lighting Plan (Sec.5.7.2.A.ii)	Specifications for all proposed & existing lighting fixtures	Provided	Yes	Provide fixture height for all proposed fixtures
	Photometric data	Provided	Yes	
	Fixture height	Not Provided	No	Provide note on photometric plan that states the hours of operation for the lighting
	Mounting & design	Provided	Yes	
	Glare control devices (Also see Sec. 5.7.3.D)	Provided	Yes	
	Type & color rendition of lamps	Provided	Yes	The City may modify these levels if such modifications are deemed necessary and appropriate for the use and surrounding area. Applicant should request a modification and reason if they so choose.
	Hours of operation	Not Provided	No	
Photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties	Provided	Yes		
Maximum Height (Sec. 5.7.3.A)	Height not to exceed maximum height of zoning district (or 25 ft. where adjacent to residential districts or uses)	Not Provided	No	Provide height of fixtures
Standard Notes (Sec. 5.7.3.B)	<ul style="list-style-type: none"> - Electrical service to light fixtures shall be placed underground - Flashing light shall not be permitted - Only necessary lighting for security purposes & limited operations shall be permitted after a site's hours of operation 	Not provided	No	Provide notes on photometric plan
Security	- All fixtures shall be	Proposed	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Lighting (Sec. 5.7.3.H) Lighting for security purposes shall be directed only onto the area to be secured.	located, shielded, and aimed at the areas to be secured. - Fixtures mounted on the building and designed to illuminate the facade are preferred			
Average Light Levels (Sec.5.7.3.E)	Average light level of the surface being lit to the lowest light of the surface being lit shall not exceed 4:1	4.19:1 Proposed	No	
Type of Lamps (Sec. 5.7.3.F)	Use of true color rendering lamps such as metal halide is preferred over high & low pressure sodium lamps	LED proposed	Yes	
Min. Illumination (Sec. 5.7.3.k)	Parking areas: 0.2 min	0.2 min	Yes	Provide minimum of 0.2 on walkways and show photometrics for fixtures on the buildings for the entrances.
	Loading & unloading areas: 0.4 min	NA	NA	
	Walkways: 0.2 min	0.0 min	No	
	Building entrances, frequent use: 1.0 min	Not provided	No	
	Building entrances, infrequent use: 0.2 min	Not provided	No	
Max. Illumination adjacent to Non-Residential (Sec. 5.7.3.K)	When site abuts a non-residential district, maximum illumination at the property line shall not exceed 1 foot candle	0.0 proposed	Yes	
Cut off Angles (Sec. 5.7.3.L)	When adjacent to residential districts - All cut off angles of fixtures must be 90° - maximum illumination at the property line shall not exceed 0.5 foot candle	Proposed	Yes	
Flag lighting (Sec. 5.7.5.C)	Provided that the illumination is the minimum level necessary, and that the light source is aimed and shielded to direct light only onto the intended target and to prevent glare for motorists and pedestrians	Flag pole lighting proposed	Yes?	Provide details of the flagpole lighting

Item	Required Code	Proposed	Meets Code	Comments
Other Requirements				
Building Code	Building exits must be connected to sidewalk system or parking lot.	All except one exit on the east side of the building have a sidewalk connection	Yes	
Design and Construction Standards Manual	Land description, Sidwell number (metes and bounds for acreage parcel, lot number(s), Liber, and page for subdivisions).		Yes	
General layout and dimension of proposed physical improvements	Location of all existing and proposed buildings, proposed building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private).		Yes	Site Plan Checklist and DCS require: driveways and buildings within 300 ft. of parcel lot lines to be shown on site plan.
Economic Impact	- Total cost of the proposed building & site improvements - Number of anticipated jobs created (during construction & after building is occupied, if known)		Yes	Budget of \$5 million. Approximately 50 construction jobs. No additional staff anticipated for the new building.
Exterior lighting (Sec. 5.7)	Photometric plan and exterior lighting details needed at time of Final Site Plan submittal	No photometric plan provided	Yes	
Property Split or Combination	Property combination or split shall be reviewed and approved by the Community Development Department.	Combination proposed for all parcels in the park	Yes	Parcel combination should be submitted to Assessing Department as soon as possible to confirm that a combination is possible
Development/ Business Sign	Signage if proposed requires a permit.	No signage proposed	NA	

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4, and 5 of the zoning ordinance for further details.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

ENGINEERING REVIEW



PLAN REVIEW CENTER REPORT

August 15, 2017

Engineering Review

City of Novi Lakeshore Park Building
JSP17-0043

Applicant

City of Novi

Review Type

Preliminary/Final Site Plan

Property Characteristics

- Site Location: Lakeshore Park – south of South Lake Drive, west of Thirteen Mile Road
- Site Size: 31.87 acres
- Plan Date: July 25, 2017
- Design Engineer: PEA, Inc.

Project Summary

- Construction of a 9,400 square foot community center, two pavilions, outdoor amphitheater, outdoor play area and associated parking.
- Water service will be provided from existing water main in South Lake Drive.
- Sanitary sewer service will be provided by connection to an existing sanitary sewer manhole on the 15 inch sanitary sewer in South Lake Drive.
- Storm water would be collected on site with proposed rain garden and detention on site.

Recommendation

Approval of the Preliminary Site Plan and Storm Water Management plan is recommended.

Approval of the Final Site Plan and Storm Water Management plan is NOT recommended.

Comments:

The Preliminary Site Plan meets the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and the Engineering Design Manual with the following exceptions, which can be addressed with a revised Final Site Plan submittal:

Comments:

General

1. A right-of-way permit will be required for work within the public right-of-way of South Lake Drive.
2. A letter from either the applicant or the applicant's engineer must be submitted with the next submittal highlighting the changes made to the plans addressing each of the comments in this review.

Water Main

1. Six (6) inch fire hydrant leads cannot be longer than 25 feet. Provide 8-inch water main on the site.
2. Provide a tapping sleeve, valve and well at the connection to the existing water main in South Lake Drive. The existing water service connection is a 2 inch connection.
3. Provide a profile for all proposed water main 8-inch and larger.
4. Use two 45-degree bends in lieu of any 90-degree water main bends proposed.
5. Utility easements will not be required on this City owned site. Remove the note on sheets C5.1 and C5.2 about easements for water main and sanitary sewer.
6. Provide clarification on sheet C5.2 on the intent and extent of water service lead replacement and delete any extraneous notes for water main. Show how existing water service will connect to proposed water main.

Sanitary Sewer

7. City Water & Sewer staff indicate that the existing force main from the grinder pump is not 3-inch. Contact Water & Sewer and they can assist with field verification of the size of the existing line.

Paving & Grading

8. Replace the sidewalk detail shown on sheet C10.1 with the City's standard sidewalk cross section.
9. Revise the grading in the drainage area 3A rain garden to lower the grade surrounding IN5A and to flatten the slope to the east to allow for a 4- to 6-inch ponding depth.
10. Show area around existing 4-inch storm to be protected, surrounded with silt fence or tree fence to prohibit construction traffic over the pipe.

Storm Sewer

11. Remove General Utility Note number 14 from sheets C5.1 and C5.2.
12. Minimum size of storm sewer collecting surface drainage is 12 inch diameter. Provide 12 inch storm for the EX6 to CB5 and IN5A to CB5 runs. Provide a

- storm structure south of existing inlet 7, north of the proposed sidewalk and replace 4-inch storm with new 12-inch storm to existing inlet 6.
13. Provide an oil/gas separator at CB4.
 14. Indicate how roof drainage will be conveyed to the storm sewer system.

Storm Water Management Plan

15. The SWMP must detail the storm water system design, calculations, details, and maintenance as stated in the ordinance. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates.
16. The Engineering Design Manual calls for a minimum runoff coefficient of 0.35 to be used for all grass lawns for detention basin sizing.
17. Provide an emergency spillway or secondary standpipe as required in section 5.6.4.C of the Engineering Design Manual.
18. Provide a 5-foot wide stone bridge allowing direct access to the standpipe from the bank of the basin during high-water conditions (i.e. stone 6-inches above high water elevation). Provide a detail and/or note as necessary.

The following must be addressed prior to construction:

19. A pre-construction meeting shall be required prior to the commencement of any site work. Contact Sarah Marchioni at (248) 347-0430 for details on the requirements.
20. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. There is no fee for this permit.
21. An NPDES permit must be obtained from the MDEQ since the site is over 5 acres in size. The MDEQ requires an approved plan to be submitted with the Notice of Coverage.
22. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.
23. A permit for work within the right-of-way South Lake Drive must be obtained from the City of Novi.
24. Contact the Water & Sewer Division at 248-347-0498 to determine any applicable water & sewer tap fees.

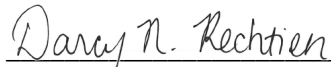
25. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the Water and Sewer Senior Manager after the water main plans have been approved.
26. Construction Inspection fees, amount to be determined once the final construction cost estimate is submitted, must be paid prior to the pre-construction meeting.
27. A street sign financial guarantee in the amount of \$14,400 (\$400 per traffic control sign proposed) must be posted with the Community Development Department.

The following items must be addressed prior to issuance of a Temporary Certificate of Occupancy approval for the development:

28. The amount of the incomplete site work performance guarantee for any outstanding site improvement items, limited to top course of pavement and other minor items, at 1.2 times the amount required to complete the site improvements as specified in the Performance Guarantee Ordinance.
29. Spalding DeDecker will prepare the record drawings for this development. The record drawings will be prepared in accordance with Article XII, Design and Construction Standards, Chapter 11 of the Novi Code of Ordinances.
30. A Bill of Sale for the utilities conveying the improvements to the City of Novi must be submitted to the Community Development Department. This document is available on our website.
31. Submit to the Community Development Department, Waivers of Lien from any parties involved with the installation of each utility as well as a Sworn Statement listing those parties and stating that all labor and material expenses incurred in connection with the subject construction improvements have been paid.
32. Submit a Maintenance Bond to the Community Development Department in an amount to be determined from the final cost estimate (equal to 25 percent of the cost of the construction of the utilities to be accepted). This bond must be for a period of two years from the date that the Utility Acceptance Permit is issued by the City of Novi Engineering Division. This document is available on our website.

To the extent this review letter addresses items and requirements that require the approval of or a permit from an agency or entity other than the City, this review shall not be considered an indication or statement that such approvals or permits will be issued.

Please contact Darcy Rechten at (248) 735-5695 with any questions.



Darcy N. Rechten, P.E.

cc: Theresa Bridges, Engineering
George Melistas, Engineering
Kirsten Mellem, Community Development
Ben Croy, Water and Sewer
Kristin Pace, Water and Sewer

LANDSCAPE REVIEW



PLAN REVIEW CENTER REPORT

August 13, 2017

Preliminary/Final Site Plan

Lakeshore Park Building

Review Type

Preliminary/Final Site Plan Landscape Review

Job

JSP17-0043

Property Characteristics

- Site Location: Lakeshore Park – fronting South Lake Drive
- Site Zoning: **R-4**
- Adjacent Zoning: **R-4**
- Plan Date: 7/26/2017

Ordinance Considerations

This project was reviewed for general conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed and incorporated as part of the Preliminary Site Plan submittal. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review and the accompanying Landscape Chart are summaries and are not intended to substitute for any Ordinance.

Recommendation:

This project is **recommended for approval** with the understanding that the items listed below will be addressed satisfactorily in the Final Site Plans. While the revised plans may be submitted as part of Electronic Stamping Sets, please provide a printed set for my review.

Landscape Waivers:

A number of Landscape Waivers from Planning Commission are required for the submitted landscape plans. These are:

1. No berm is provided along South Lake Drive. This is supported by staff, although not for the reason given by the applicant.
2. No street trees are provided along South Lake Drive because there is insufficient room for them between the right-of-way and the road. This waiver is supported by staff.
3. Some of the foundation landscaping is provided about 8 feet away from the building. This waiver is supported by staff because the walkway around the building prevents the placement of the landscaping right at the foundation.
4. A mix of trees and shrubs are provided as detention basin landscaping instead of all native shrubs. No reason for this substitution was provided so staff isn't in support of the waiver at this time.

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2))

A full tree survey, including size and species of trees 8" dbh and greater, has been provided, and trees to be removed/saved are clearly indicated.

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. The required 4 foot high (minimum) berm with 4' wide crest berm is not provided. **A landscape waiver is required.** The justification given is that it would block the view of the lake from the building. The grading plan indicates that the building is 3 feet below the

road at the road's crest. The site's layout and grading, including the access pathway down to the beach entrance, makes the possibility of providing the required berm along the frontage very difficult. As sufficient screening plantings are provided, this waiver request is supported by staff.

2. The required number of canopy/large evergreen trees and subcanopy trees are provided. **Please clearly indicate the existing trees being used to meet the requirement.**
3. No street trees are provided because there is insufficient room between the right-of-way line and the street. The landscape waiver required for this shortage is supported by staff.

Screening Between Residential and Non-residential – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.A)

1. Since the zoning is residential, no screening or berm is required along the east or west property line. However, given the proposed use, additional screening along the west and east property line to increase the screening between the residences and the building and parking lot is recommended.
2. Additional trees have been proposed along the west property line to screen the entry drive and parking areas. **If the screening is determined by the city Landscape Architect to be insufficient once construction is complete, additional vegetation may be required.**
3. **As the two existing Austrian Pines near the east property line appear to be in failing health from *Diplodia*, it is recommended that they be removed at this time and a screening wall or fence with evergreen vegetation planted along it be included in the proposed landscaping.**

Street Tree Requirements (Zoning Sec. 5.5.3.E.i.c and LDM 1.d.)

1. No street trees are provided because there is insufficient room between the right-of-way line and the street. **A landscape waiver is required for this insufficiency (13 trees).**
2. The landscape waiver required for this shortage is supported by staff.

Parking Lot Landscape (Zoning Sec. 5.5.3.C.) – Commercial Section

1. Interior trees need to be placed within the boundaries of the parking lot, and/or in the parking lot corners. **Please locate all interior trees appropriately.**
2. Islands need to have unpaved areas for planting at least 10' wide and 200sf per tree planted in it. **Please widen all landscape islands used for plantings.**
3. The islands used to break up the parking bays need to have deciduous canopy trees planted in them in order to fully meet the requirement. **Please modify the drainage configurations for these islands per the requirement mentioned above and plant a tree within the island. That tree can be one of the required perimeter trees.**

Parking Lot Perimeter Canopy Trees (Zoning Sec. 5.5.3.C.(3)(iv))

The perimeter should be measured around the exterior edge of the parking lot, and along the exterior edge of the access drive and drive with one bay of parking along it. The 799 lf is not accurate. **Please recalculate the perimeter requirement and provide the required number of trees.**

Transformer/Utility Box Screening (Zoning Sec 5.5.3.D.)

Please screen the transformer box per the detail on Sheet L-1.2

Building Foundation Landscape (Zoning Sec 5.5.3.D.)

1. **Please check the calculation of the building perimeter to be sure the basis is correct and revise the calculation if necessary. I measured the perimeter as about 432lf, not 330.**
2. Some of the required foundation landscaping is provided in the swale across the perimeter walkway from the building. **A landscape waiver is required for this location. It is supported by staff as it is close to the building and appears to be at the foundation from South Lake Drive.**

3. The front of the building facing Thirteen Mile Road is to have 60% of its façade in greenspace consisting of the elements listed in #2. Including the swale landscaping discussed above, 67% of the building facing South Lake Drive is landscaped.

Planting Notations and Details (LDM)

1. The standard notes and details have been provided and are acceptable. Please see the landscape chart for additional notes about the details.
2. **Please use species native to Michigan for at least 50% of the foundation and other accessory plantings (this is met for the trees).**

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 3)

1. Storm basin landscaping provides the required coverage.
2. **Please use large native shrubs for the required coverage. A landscape waiver is required to substitute trees for the shrubs. If it desired to keep the current configuration, please provide justification for the difference and waiver.**

Irrigation (LDM 1.a.(1)(e) and 2.s)

An automatic irrigation system is not required, but there must be a method for the plantings to achieve sufficient water for their establishment and long-term survival. If no system is provided, please provide information and instructions as to how the plantings will get this water.

Proposed topography. 2' contour minimum (LDM 2.e.(1))

Proposed topography has been provided.

Snow Deposit (LDM.2.q.)

Be sure to use locations for snow storage that won't harm landscaping.

Proposed trees to be saved (Sec 37 Woodland Protection 37-9, LDM 2.e.(1))

Trees to be removed and saved are clearly shown.

Corner Clearance (Zoning Sec 5.9)

Please indicate corner clearance zones on the interior intersection to ensure proper visibility is provided.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or meader rmeader@cityofnovi.org.



Rick Meader – Landscape Architect

LANDSCAPE REVIEW SUMMARY CHART

Review Date: August 13, 2017
Project Name: JSP17 – 0043: LAKESHORE PARK BUILDING
Plan Date: July 26, 2017
Prepared by: Rick Meader, Landscape Architect E-mail: rmeader@cityofnovi.org;
 Phone: (248) 735-5621

Items in **Bold** need to be addressed by the applicant before approval of the Preliminary Site Plan.
Underlined items need to be addressed for Final Site Plan.

Item	Required	Proposed	Meets Code	Comments
Landscape Plan Requirements (LDM (2))				
Landscape Plan (Zoning Sec 5.5.2, LDM 2.e.)	<ul style="list-style-type: none"> ▪ New commercial or residential developments ▪ Addition to existing building greater than 25% increase in overall footage or 400 SF whichever is less. ▪ 1"=20' minimum with proper North. Variations from this scale can be approved by LA ▪ Consistent with plans throughout set 	Yes	Yes	Scale 1"=40' Detail 1"=20'
Project Information (LDM 2.d.)	Name and Address	Yes	Yes	
Owner/Developer Contact Information (LDM 2.a.)	Name, address and telephone number of the owner and developer or association	Yes	Yes	
Landscape Architect contact information (LDM 2.b.)	Name, Address and telephone number of RLA	Yes	Yes	
Sealed by LA. (LDM 2.g.)	Requires original signature	Yes	Yes	<u>Need for Final Site Plans</u>
Miss Dig Note (800) 482-7171 (LDM.3.a.(8))	Show on all plan sheets	Yes	Yes	
Zoning (LDM 2.f.)	Include all adjacent zoning	Parcel: R4 North: Walled Lak East, South, West: R-4	Yes	
Survey information (LDM 2.c.)	<ul style="list-style-type: none"> ▪ Legal description or boundary line survey ▪ Existing topography 	Yes	Yes	Sheets C1.1, 1.2
Existing plant material Existing woodlands or	<ul style="list-style-type: none"> ▪ Show location type and size. Label to be 	Yes	Yes	1. Sheets T-1.0, T1.1 2. Trees to be saved in

Item	Required	Proposed	Meets Code	Comments
wetlands (LDM 2.e.(2))	<ul style="list-style-type: none"> saved or removed. Plan shall state if none exists. 			<p>project area are shown with tree fencing.</p> <p>3. Removals shown on C3.0 and tree chart.</p> <p>4. Replacement calculations on T-1.1</p>
Soil types (LDM.2.r.)	<ul style="list-style-type: none"> As determined by Soils survey of Oakland county Show types, boundaries 	Yes	Yes	Sheets C-4.1, C-4.2
Existing and proposed improvements (LDM 2.e.(4))	Existing and proposed buildings, easements, parking spaces, vehicular use areas, and R.O.W	Yes	Yes	
Existing and proposed utilities (LDM 2.e.(4))	Overhead and underground utilities, including hydrants	Yes	Yes	
Proposed grading. 2' contour minimum (LDM 2.e.(1))	Provide proposed contours at 2' interval	Yes	Yes	Sheets C-4.1, C-4.2
Snow deposit (LDM.2.q.)	Show snow deposit areas on plan	Yes	Yes/No	Please indicate snow deposit areas in main parking lot that won't harm landscaping.
LANDSCAPING REQUIREMENTS				
Parking Area Landscape Requirements LDM 1.c. & Calculations (LDM 2.o.)				
General requirements (LDM 1.c)	<ul style="list-style-type: none"> Clear sight distance within parking islands No evergreen trees 	No	No	Please indicate 25 foot clear vision zone for parking lot entrance to main drive and be sure required visibility is provided.
Name, type and number of ground cover (LDM 1.c.(5))	As proposed on planting islands	Yes	Yes	Seed lawn or hydrophilic seeding is indicated on islands.
General (Zoning Sec 5.5.3.C.ii)				
Parking lot Islands (a, b. i)	<ul style="list-style-type: none"> A minimum of 200 SF to qualify 200sf / tree in island 6" curbs Islands minimum width 10' BOC to BOC 	Islands less than 10 feet wide	No	<p>1. Please widen end caps and interior islands' side-to-side width to 10 feet at back of curb.</p> <p>2. Please label islands with their area in SF.</p>
Curbs and Parking stall reduction (c)	Parking stall can be reduced to 17' and the curb to 4" adjacent to a sidewalk of minimum 7	Yes		

Item	Required	Proposed	Meets Code	Comments
	ft.			
Contiguous space limit (i)	Maximum of 15 contiguous spaces	Maximum bay is 15 spaces	Yes/No	<ol style="list-style-type: none"> Islands must have a tree planted in them to count as a landscaped island. Please plant trees in each island intended to meet requirement.
Plantings around Fire Hydrant (d)	<ul style="list-style-type: none"> No plantings with matured height greater than 12' within 10 ft. of fire hydrants Trees should be located at least 10 feet away from utility structures. 	No	TBD	<ol style="list-style-type: none"> Please clearly show all hydrants and utility structures on landscape plan and keep all trees at least 10 feet from them. Trees should also be no closer than 5 feet from underground utility lines.
Landscaped area (g)	Areas not dedicated to parking use or driveways exceeding 100 sq. ft. shall be landscaped	Yes	Yes	
Clear Zones (LDM 2.3.(5))	25 ft corner clearance required. Refer to Zoning Section 5.5.9	No	No	<ol style="list-style-type: none"> Please indicate 25 foot clear vision zone at parking lot/main drive intersection. Remove any shrubs taller than 30" or trees from the zone.
Category 1: For OS-1, OS-2, OSC, OST, B-1, B-2, B-3, NCC, EXPO, FS, TC, TC-1, RC, Special Land Use or non-residential use in any R district (Zoning Sec 5.5.3.C.iii)				
A = Total square footage of parking spaces not including access aisles x 10%	$A = 29106 \text{ sf} * 7.5\% = 2183 \text{ sf}$			
B= Total square footage of additional paved vehicular use areas over 50,000 SF) x 1 %	$B = xx \text{ sf} * 1\% = xx \text{ sf}$	NA		
Category 2: For: I-1 and I-2 (Zoning Sec 5.5.3.C.iii)				
A. = Total square footage of parking spaces not including access aisles x 7%	$A = xx \text{ sf} * 5\% = xx \text{ sf}$	NA		
B= Total square footage of additional paved vehicular use areas over 50,000 SF) x 0.5%	$B = xx \text{ sf} * 0.5\% = xx \text{ sf}$	NA		

Item	Required	Proposed	Meets Code	Comments
All Categories				
C = A+B Total square footage of landscaped islands	2183 + 0 = 2183 SF	3979 sf	TBD	<ol style="list-style-type: none"> 1. Please label island areas within parking lot intended to meet requirement with area in SF. 2. It is doubtful that the slope of the large interior parking lot will support hydrophilic plantings for most of the area. Please reconsider the plantings in the island to be sure there is an attractive cover within it.
E = D/200 Number of canopy trees required	2183 / 200 = 11 trees	20 trees	Yes/No	Interior trees should be located within the boundaries of the parking lot or in the lots corner islands. Please locate them in these locations.
Perimeter Green space	1 tree per 35lf parking lot perimeter	23	No	<ol style="list-style-type: none"> 1. The parking lot perimeter is to be measured around the outer edge of all paved parking surfaces (not adjacent sidewalks). 2. Please re-measure the perimeter, recalculate the required trees and provide all required trees along the edges of the parking areas/access drives.
Parking land banked	None	No		
Berms, Walls and ROW Planting Requirements				
Berms				
<ul style="list-style-type: none"> ▪ All berms shall have a maximum slope of 33%. Gradual slopes are encouraged. Show 1ft. contours ▪ Berm should be located on lot line except in conflict with utilities. ▪ Berms should be constructed with 6" of top soil. 				
Residential Adjacent to Non-residential (Sec 5.5.3.A) & (LDM 1.a)				

Item	Required	Proposed	Meets Code	Comments
Berm requirements (Zoning Sec 5.5.A)	None	None	Yes	
Planting requirements (LDM 1.a.)	None	<ul style="list-style-type: none"> • Additional trees proposed along west property line. • No additional plantings proposed along east property line. 		<ol style="list-style-type: none"> 1. Additional screening trees are provided along the west property line to increase the opacity. These appear satisfactory but may have to be augmented once planting is complete. 2. Only existing landscaping is shown on the east side. The existing Austrian Pines are showing signs of diplopedia which is usually fatal. The only other trees between the adjacent property and what will be elevated parking are volunteer boxelders which won't provide much winter opacity. 3. Please provide additional screening landscaping along the east side that will provide additional screening.
Adjacent to Public Rights-of-Way (Sec 5.5.B) and (LDM 1.b)				
Berm requirements (Zoning Sec 5.5.3.A.(5))	4 foot tall berm with 4 foot crest is required for residential zoning	None	No	<ol style="list-style-type: none"> 1. A landscape waiver will be required to not provide the required berm. 2. Please provide justification for any waiver request.
Cross-Section of Berms (LDM 2.j)				
Slope, height and width	<ul style="list-style-type: none"> ▪ Label contour lines ▪ Maximum 33% ▪ Constructed of loam ▪ 6" top layer of topsoil 	NA		If any berms are provided, please provide a representative berm detail for each.
Type of Ground Cover		NA		
Setbacks from Utilities	Overhead utility lines and 15 ft. setback from	NA		

Item	Required	Proposed	Meets Code	Comments
	edge of utility or 20 ft. setback from closest pole			
Walls (LDM 2.k & Zoning Sec 5.5.3.vi)				
Material, height and type of construction footing	Freestanding walls should have brick or stone exterior with masonry or concrete interior	Retaining walls proposed along east and south sides of building parking lot.	TBD	
Walls greater than 3 ½ ft. should be designed and sealed by an Engineer			TBD	<ol style="list-style-type: none"> No wall details are provided on 10.1 as indicated on Sheet L-1.0 Standard Redi-Rock wall details provided at end of set.
ROW Landscape Screening Requirements (Sec 5.5.3.B. ii)				
Greenbelt width (2)(3) (5)	34 ft	43 ft min	Yes	
Min. berm crest width	4 ft	None	No	A landscape waiver is required to not provide the required berm. Please provide justification if a berm is requested.
Minimum berm height (9)	4 ft	None	No	See above
3' wall	(4)(7)	None	Yes	
Canopy deciduous or large evergreen trees Notes (1) (10)	<ul style="list-style-type: none"> 1 tree per 40 lf $(285+217-34)/40 = 12$ trees 	5 new evergreens + 7 existing trees	Yes	Please clearly indicate the 7 trees that are counted toward this requirement
Sub-canopy deciduous trees Notes (2)(10)	<ul style="list-style-type: none"> 1 tree per 25 lf $(285+217-34)/25 = 19$ trees 	19 trees	Yes	
Canopy deciduous trees in area between sidewalk and curb (Novi Street Tree List)	<ul style="list-style-type: none"> 1 tree per 35 lf $(285+217-34)/35 = 13$ trees 	None	No	<ol style="list-style-type: none"> No trees are provided due to insufficient room between the right-of-way and the edge of pavement. This requires a landscape waiver request. The request is supported by staff.
Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d (2)				
Refer to Planting in ROW, building foundation landscape, parking lot landscaping and LDM				
Interior Street to Industrial subdivision (LDM 1.d.(2))	<ul style="list-style-type: none"> 1 canopy deciduous or 1 large evergreen per 35 lf. along ROW 	NA		

Item	Required	Proposed	Meets Code	Comments
	<ul style="list-style-type: none"> ▪ No evergreen trees closer than 20 ft. ▪ 3 sub canopy trees per 40 l.f. of total linear frontage ▪ Plant massing for 25% of ROW 			
Screening of outdoor storage, loading/unloading <i>(Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)</i>		No		<ol style="list-style-type: none"> 1. No screening/loading areas are provided so no screening is required. 2. If loading is provided, appropriate screening must be provided.
Transformers/Utility boxes <i>(LDM 1.e from 1 through 5)</i>	<ul style="list-style-type: none"> ▪ A minimum of 2ft. separation between box and the plants ▪ Ground cover below 4" is allowed up to pad. ▪ No plant materials within 8 ft. from the doors 	No	No	Please show required landscape screening around the transformer per the detail provided on L-1.2.
Building Foundation Landscape Requirements (Sec 5.5.3.D)				
Interior site landscaping SF	<ul style="list-style-type: none"> ▪ Equals to entire perimeter of the building x 8 with a minimum width of 4 ft. ▪ 432 If x 8 ft = 3456 SF 	4021 sf	TBD	<ol style="list-style-type: none"> 1. Please correct perimeter and revise calculations. 2. Please label each area of foundation landscaping provided in SF. 3. A landscape waiver is required to use the swale as foundation landscaping. Due to its close proximity to the building, this is supported by staff.
<i>Zoning Sec 5.5.3.D.ii. All items from (b) to (e)</i>	If visible from public street a minimum of 60% of the exterior building perimeter should be covered in green space	67% of building is screened <ul style="list-style-type: none"> • 	Yes	
Detention/Retention Basin Requirements (Sec. 5.5.3.E.iv)				
Planting requirements <i>(Sec. 5.5.3.E.iv)</i>	<ul style="list-style-type: none"> ▪ Clusters shall cover 70-75% of the basin rim area ▪ 10" to 14" tall grass along sides of basin 	A mix of trees and trees is provided to meet the required coverage.	No	<ol style="list-style-type: none"> 1. Please show HWL on ponds and locate shrubs at or near the high-water level. 2. A waiver is required

Item	Required	Proposed	Meets Code	Comments
	<ul style="list-style-type: none"> Refer to wetland for basin mix 			to use trees instead of large native shrubs. Please either use shrubs to meet the requirement or provide justification for the waiver request.
LANDSCAPING NOTES, DETAILS AND GENERAL REQUIREMENTS				
Landscape Notes - Utilize City of Novi Standard Notes				
Installation date (LDM 2.i. & Zoning Sec 5.5.5.B)	Provide intended date	Between Mar 15 and Nov 15.	Yes	
Maintenance & Statement of intent (LDM 2.m & Zoning Sec 5.5.6)	<ul style="list-style-type: none"> Include statement of intent to install and guarantee all materials for 2 years. Include a minimum one cultivation in June, July and August for the 2-year warranty period. 	Yes	Yes	
Plant source (LDM 2.n & LDM 3.a.(2))	Shall be northern nursery grown, No.1 grade.	Yes	Yes	
Irrigation plan (LDM 2.s.)	A method for ensuring that plantings receive sufficient watering for establishment and long-term survival must be provided.	None	No	<ol style="list-style-type: none"> If an irrigation system is to be provided, the plan for that system should be provided with Final Site Plans. If a system is not provided, notes regarding how plantings will receive sufficient water for establishment and survival must be part of the Final Site Plans.
Other information (LDM 2.u)	Required by Planning Commission	NA		
Establishment period (Zoning Sec 5.5.6.B)	2 yr. Guarantee	Yes	Yes	
Approval of substitutions. (Zoning Sec 5.5.5.E)	City must approve any substitutions in writing prior to installation.	Yes	Yes	
Plant List (LDM 2.h.) - Include all cost estimates				
Quantities and sizes	Refer to LDM suggested plant list	Yes	Yes	
Root type		Yes	Yes	
Botanical and common names		No	No	Please use at least 50% species native to

Item	Required	Proposed	Meets Code	Comments
				Michigan.
Type and amount of lawn		Yes	Yes	Seed is indicated.
Cost estimate (LDM 2.t)	For all new plantings, mulch and sod as listed on the plan	Yes	No	Required for final site plans.
Planting Details/Info (LDM 2.i) – Utilize City of Novi Standard Details				
Canopy Deciduous Tree	Refer to LDM for detail drawings	Yes	Yes	1. Please add a callout stating that the root ball dirt should be removed to expose the root flare. 2. If desired, the mulch depth can be reduced to 3".
Evergreen Tree		Yes	Yes	See above
Shrub		Yes	Yes	If desired, the mulch depth can be reduced to 2".
Perennial/ Ground Cover		Yes	Yes	
Tree stakes and guys. (Wood stakes, fabric guys)		Yes	Yes	
Tree protection fencing	Located at Critical Root Zone (1' outside of dripline)	Yes	Yes	
Other Plant Material Requirements (LDM 3)				
General Conditions (LDM 3.a)	Plant materials shall not be planted within 4 ft. of property line	Yes	Yes	
Plant Materials & Existing Plant Material (LDM 3.b)	Clearly show trees to be removed and trees to be saved.	Yes	Yes	
Landscape tree credit (LDM3.b.(d))	Substitutions to landscape standards for preserved canopy trees outside woodlands/ wetlands should be approved by LA. Refer to Landscape tree Credit Chart in LDM	No		
Plant Sizes for ROW, Woodland replacement and others (LDM 3.c)	Canopy Deciduous shall be 3" and sub-canopy deciduous shall be 2.5" caliper. Refer to section for more details	Yes	Yes	
Plant size credit (LDM3.c.(2))	NA	No		
Prohibited Plants	No plants on City	No	Yes	

Item	Required	Proposed	Meets Code	Comments
<i>(LDM 3.d)</i>	Invasive Species List			
Recommended trees for planting under overhead utilities <i>(LDM 3.e)</i>	Label the distance from the overhead utilities	No	TBD	Please clearly indicate overhead lines on Landscape Plan.
Collected or Transplanted trees <i>(LDM 3.f)</i>		No		
Nonliving Durable Material: Mulch <i>(LDM 4)</i>	<ul style="list-style-type: none"> ▪ Trees shall be mulched to 3" depth and shrubs, groundcovers to 2" depth ▪ Specify natural color, finely shredded hardwood bark mulch. Include in cost estimate. ▪ Refer to section for additional information 	Yes	Yes	

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. For the landscape requirements, please see the Zoning Ordinance landscape section 5.5 and the Landscape Design Manual for the appropriate items under the applicable zoning classification.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

TRAFFIC REVIEW



AECOM
 27777 Franklin Road
 Southfield
 MI, 48034
 USA
 aecom.com

Project name:
 JSP17-0043 Lakeshore Park Building PSP/FSP
 Traffic Review

From:
 AECOM

Date:
 August 11, 2017

To:
 Barbara McBeth, AICP
 City of Novi
 45175 10 Mile Road
 Novi, Michigan 48375

CC:
 Sri Komaragiri, Kirsten Mellem, George Melistas,
 Theresa Bridges, Darcy Rechien

Memo

Subject: JSP17-0043 Lakeshore Park Building PSP/FSP Traffic Review

The preliminary/final site plan was reviewed to the level of detail provided and AECOM **recommends approval of the Preliminary Site Plan, but does not recommend approval of the Final Site Plan.** For the applicant to move forward with stamping set a revised Final site plan is to be submitted to respond to the comments provided below until they are adequately addressed to the satisfaction of the City.

GENERAL COMMENTS

1. The applicant, NSA Architects, Engineers, Planners, is proposing modifications to Novi’s Lakeshore Park located on the south side of South Lake Drive, west of Thirteen Mile Road. Modifications include a 9,400 S.F. community center, two (2) pavilions, an amphitheater, play areas and parking.
2. South Lake Drive is under the jurisdiction of the City of Novi.
3. The site is currently zoned R4, Single Family Residential.

TRAFFIC IMPACTS

1. AECOM performed an initial trip generation estimate based on the ITE Trip Generation Manual, 9th Edition, as follows:

ITE Code: 495 (Recreational Community Center)
 Development-specific Quantity: 9,400 square feet
 Zoning Change: N/A

Trip Generation Summary			
	City of Novi Threshold	Estimated Trips	Analysis
AM Peak-Hour, Peak-Direction Trips	100	13	Average Rate

PM Peak-Hour, Peak-Direction Trips	100	13	Average Rate
Daily (One-Directional) Trips	750	318	Average Rate

The land use, Recreational Community Center, was used because it most closely described the new building being constructed on site at Lakeshore Park. The other park amenities were not included in the trip generation as they are generally existing. It should be noted that the proposed building size (9,400 square feet) is outside the range for the samples within the ITE Trip Generation Manual so the results may not be entirely accurate unless additional local data is collected. However, based on the provided estimates above, AECOM does not foresee trips increasing beyond the City's thresholds.

2. The number of trips does not exceed the City's threshold of more than 750 trips per day or 100 trips per either the AM or PM peak hour. AECOM recommends performing the following traffic impact study in accordance with the City's requirements:

Traffic Impact Study Recommendation	
Type of Study	Justification
None	N/A

EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s).

1. There are not any proposed geometric revisions to the entrance on South Lake Drive; however, a two-directional bike lane is accommodated in the proposed driveway cross-section.
 - a. The radius of the driveway is 30' which is compliant with City standards.
2. The site does not require any modifications to the external roadway such as a right turn lane or taper.
3. An accessible sidewalk route to South Lake Drive is proposed on the east end of the site.

INTERNAL SITE OPERATIONS

The following comments relate to the on-site design and traffic flow operations.

1. General Traffic Flow
 - a. The roadway through the site has adequate width and radii dimensions.
 - i. The applicant should provide details for the bicycle lane including pavement marking color and pavement marking details.
 - b. The proposed trash enclosure may interfere with the easternmost parking space along the south parking bay. The applicant should review the location of the trash enclosure and update, as applicable, so that it does not interfere with parking or traffic operations, as indicated in Section 5.4.2.A of the Zoning Ordinance.
 - c. Large trucks and emergency vehicles are expected to be able to maneuver throughout the site.
2. Parking Facilities
 - a. The applicant used the parking space rate of one space per every three persons allowed within the maximum occupancy load found under the land use of "private club or lodge halls" in the City's Zoning Ordinance.

- b. The applicant is required to provide a minimum of 82 total parking spaces. Based on the proposed plans, the applicant is removing 94 total spaces from the existing site and proposing 136 total parking spaces.
 - c. Of the proposed 136 parking spaces, seven will be barrier free parking spaces. The 2010 ADA standards for accessible design requires at least five barrier free parking spaces for 136 total spaces. Four of the seven barrier free parking spaces will be van accessible.
 - d. Parking spaces are generally in compliance with City standards. However, the utilization of six inch bumper blocks for 19 foot spaces should be revised. The bumper blocks can be lowered to four inches in height such that the face of the bumper block is two feet in front of the curb, or, the bumper blocks can be removed and the curb raised to six inches in height. Both aforementioned options are compliant with City standards; however, the currently proposed bumper blocks are not in compliance as they effectively shorten the parking space to 17 feet which requires a four inch curb/bumper block. Please consult section 5.3 of the City's Zoning Ordinance for further information.
 - e. Four inch bumper blocks should be provided in front of barrier free parking spaces where the sidewalk is flush with the pavement.
 - f. Parking aisles are in compliance with City standards.
 - g. Parking end islands are required to be ten feet in width. The current proposed end island widths are both eight and nine feet. Please consult section 5.3 of the City's Zoning Ordinance for further information.
 - h. A total of 13 bicycle parking spaces are required. The applicant has provided 50 bicycle spaces. The proposed bicycle parking is generally compliant with City standards. However, for the bicycle parking area on the south side of the site, the offset between the southernmost bicycle parking space and the sidewalk should be increased to two feet.
 - i. Bicycle parking location to be a maximum of 120 feet from the main entrance. The applicant is proposing a location greater than 120 feet. The applicant should modify the location or seek a ZBA variance.
3. Sidewalk Requirements
- a. Sidewalk widths throughout the site are in generally in compliance with City standards. However the applicant should provide additional details regarding the columns surrounding the community center building in order to verify that there is a minimum path with of five feet that is not obstructed by the columns.
 - b. Label locations and details of ADA compliant sidewalk ramps.
4. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD).
- a. The applicant should provide details for all proposed pavement markings throughout the site.
 - i. The notes related to pavement markings for the barrier free parking spaces are conflicting between the "General Notes" section and the callouts on the site plan. The "General Notes" section is correct and all callouts should be updated for consistency. The "General Notes" section indicates a white international symbol for accessibility (which is compliant with MMUTCD standards); however, the callout indicates that the symbol will be blue.
 - ii. The applicant is required to provide pavement marking details for the proposed bicycle lane.
 - iii. If the applicant intends to provide vehicle travel lane pavement markings, as indicated, please provide details for those markings. If these are intended to be directional arrows only, and not striped, they should be hollow.
 - b. The proposed crosswalk detail is in compliance with MDOT standards.
 - c. The applicant should increase the size of the proposed stop sign to 30"x30".
 - d. The applicant could remove the stop sign from the exit of the parking lot onto the site driveway.
 - e. The applicant should provide additional details regarding the "Path Ends" and "Road Narrows" signs. The sign to indicate that the bicycle lane ends should be a R3-17 sign with a R3-17bpP plaque. The sign to indicate that the road narrows should be indicated by a W5-1 sign. The applicant should provide details related to the spacing of these two signs.

- f. The applicant should provide additional details regarding the “No Bicycles” and “Pedestrians Only” signs. There are no such signs listed in the MMUTCD so full details will be required for these signs. The applicant should also consider that these signs are placed on the paths a significant distance in front of bicycle parking areas. The applicant could consider other means for restricting bicycle riding throughout the Community Center Building area.
 - i. The “No Bicycle” signs near the pedestrian tunnel are in advance of the bike racks. If bikes are not permitted beyond the signs, the applicant should indicate how the bike racks will be accessed. Alternatively, the signs and/or bike racks could be relocated to reduce confusion.
- g. The warning signs for the crosswalk on the south end of the site should be placed in front of the crosswalk for oncoming vehicles. The signs should also be placed on both sides of the crosswalk thereby increasing the total crosswalk warning signs to eight.
- h. The applicant could consider removing the “No Parking Fire Lane” signs from the parking lot of the Community Center Building as vehicles are not anticipated to park on a corner.
- i. The applicant should consider providing signing for the bicycle lane for purposes of further designating the lane from the travel way and restricting vehicles from parking over the bicycle lane.
- j. The City requires signs to be U-channel in shape and 3# in size. Please revise plans to indicate such.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM



Sterling J. Frazier, E.I.T.
Reviewer, Traffic/ITS Engineer



Maureen N. Peters, PE
Senior Traffic/ITS Engineer

FAÇADE REVIEW



August 15, 2017

City of Novi Planning Department
 45175 W. 10 Mile Rd.
 Novi, MI 48375-3024

Façade Review Status Summary:

*Community Center - Section 9 Waiver Recommended
 Garage & Pavilion – Full Compliance*

Re: **FACADE ORDINANCE - Façade Review (for PSP & FSP)**
Lakeshore Park Buildings, PSP17-0112
 Façade Region: 1, Zoning District: R-4

Dear Ms. McBeth;

The following is the Façade Review for the above referenced project based on the drawings prepared by NSA Architects, dated 7/26/17. The percentages of materials proposed for each façade are as shown on the table below. The maximum percentages allowed by the Schedule Regulating Façade Materials (AKA Façade Chart) of Ordinance Section 5.15 are shown in the right hand column. Materials in non-compliance with the Façade Chart, if any, are highlighted in bold.

Community Center (Region 1)	North	South	East	West	Ordinance Maximum (Minimum)
Brick	0%	0%	0%	0%	100% (30% Minimum)
Stone	28%	32%	60%	25%	50%
Standing Seam Metal Roof	58%	51%	35%	31%	25%
Cement Fiber Siding	14%	17%	5%	44%	50% (Notes 11 & 15)

Community Center - As shown above, the minimum percentage of Brick is not provided and the percentage of Standing Seam Metal Roof exceeds the maximum amount allowed by the Ordinance on the north and south facades. A Section 9 Waiver is required for these deviations. In this case the extensive use of Stone is visually equivalent the minimum requirement for Brick. The building exhibits well balanced proportions and composition of materials and the small overage of Standing Seam Metal is not detrimental to the building’s appearance. The colored rendering provided appears to indicate carefully coordinated earth-toned colors. A Section 9 Waiver is therefore recommended for the underage of Brick and overage of Standing Seam Metal.

Garage Addition (Region 1)	North	South	East	West	Ordinance Maximum (Minimum)
Burnished CMU (to match existing)	50%	66%	68%	71%	0%
Asphalt Shingles (to match existing)	50%	34%	32%	29%	25%

Garage Addition at Existing Toilet Rooms – An addition approximately equal in size to the existing building is proposed using a continuation of all existing façade materials. The design is in substantial compliance with the conditions set forth in Section 5.15.7 of the Façade Ordinance which allows a continuation of existing materials on an addition. Approval is therefore recommended.

Pavilion (Region 1)	North	South	East	West	Ordinance Maximum (Minimum)
Asphalt Shingles	50%	50%	50%	50%	50% (Note 16)
Wood Timbers	50%	50%	50%	50%	50% (Note 11)

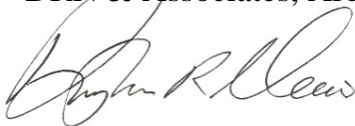
Pavilion – As shown above the proposed facades are in full compliance with the Ordinance. A Section 9 Waiver is not required.

Notes to the Applicant:

1. The façade Ordinance requires that roof top equipment be screened from view from all vantage points both on and off site using approved materials.
2. Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board will be compared to materials delivered to the site. It is the applicant’s responsibility to request the inspection of each façade material at the appropriate time. Inspections may be requested using the Novi Building Department’s Online Inspection Portal with the following link. Please click on “Click here to Request an Inspection” under “Contractors”, then click “Façade”.
<http://www.cityofnovi.org/Services/CommDev/OnlineInspectionPortal.asp>.

If you have any questions regarding this project please do not hesitate to call.

Sincerely,
 DRN & Associates, Architects PC



Douglas R. Necci, AIA

FIRE REVIEW



August 7, 2017

TO: Barbara McBeth- City Planner
Sri Ravali Komaragiri- Plan Review Center
Kirsten Mellem- Plan Review Center

CITY COUNCIL

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Bob Gatt

Mayor Pro Tem
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Jeffery R. Johnson

Assistant Chief of Police
Erick W. Zinser

Assistant Chief of Police
Jerrold S. Hart

RE: Lakeshore Park

PSP# 17-0112

Project Description:

Build a 9400 sq. ft. building and renovating the parking lot.

Comments:

- 1) Hydrant spacing is NOT as the crow flies. Hydrant spacing is no greater than 300' hydrant to hydrant. City Ordinance 11-68(F)(1)c.
- 2) FDC location MUST be within 100' from a fire hydrant. City Ordinance 912.2.3.
- 3) No fire suppression plans available for review.

Recommendation:

NOT APPROVED

Sincerely,

Kevin S. Pierce-Fire Marshal
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 W. Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

APPLICANT RESPONSE LETTER



City of Novi
Plan Review Center Report Response

August 18, 2017

Attention: Ms. Kirsten Mellem, Planner

Reference: **Lakeshore Park & Recreation Center**
Lakeshore Park
NSA Project No.: 216404.00
Plan Review Center Project: JSP 17-43

Dear Ms. Kirsten Mellem,

In response to the Plan Review Center Report dated August 8, 2017; we have included your comments and offer our responses in bold below:

DESCRIPTION

This project involves the new construction of a Picnic Shelter in Lakeshore Park. The proposed shelter is located adjacent to the existing Toilet Rooms at the South end of the Park.

PLANNING REVIEW

Zoning and Use Requirements

1. Item: Uses Permitted (Sec 3.1.5). Required Code: Publicly owned and operated parks, parkways and outdoor recreational facilities. Proposed: Public park community center and associated parking. *Planning Commission approval of the site plan is required.*

Response: Planning Commission is reviewing Lakeshore Park on Wednesday, August 23, 2017.

Building Setbacks (Sec 3.1.5 & 3.6.2.B)

2. Item: Front (North). Required Code: 75 ft. (See 3.6.2.B). Proposed: 43.5 ft. Meets Code: No. Applicant is seeking a ZBA variance. *Provide measurement on plan.*

Response: The front setback will be shown and labeled on sheet C-3.0.

3. Item: Interior Side (East). Required Code: 75 ft. Proposed: 65 ft. Meets Code: No. Applicant is seeking a ZBA variance. *Provide measurement on plan.*

Response: The building will be shifted westward to comply with the 75' required setback. This will be shown and labeled on sheet C-3.0.

Parking Setbacks (Sec 3.6.2.B)

4. Item: Front (North). Required Code: 75 ft. (See 3.6.2.B). Proposed: 130 ft. Meets Code: Yes. *Provide measurement on site plan.*

Response: The parking setback will be shown and labeled on sheet C-3.0.

5. Item: Interior Side (East). Required Code: 20 ft. Proposed: 55 ft. Meets Code: Yes. *Provide measurement on site plan.*

Response: The parking setback will be shown and labeled on sheet C-3.0.

6. Item: Interior Side (West). Required Code: 20 ft. Proposed: 75 ft. Meets Code: Yes. *Provide measurement on site plan.*

Response: The parking setback will be shown and labeled on sheet C-3.0.

Note to District Standards (Sec 3.6)

7. Item: Additional Setbacks. Required Code: For all uses other than single-family or two-family residential, the building setback shall be at least equal to: the height of the main building, 75 ft. or setback for the district (30 ft.), whichever is greater. However, the minimum building setback from access streets may be reduced to fifty (50) feet for fire department structures where quick access to the street network is required.

For all off-street parking lots serving other than single-family residential, the setback from any interior side or rear lot line shall be 20 ft., and the setback from the front and any exterior side lot line shall comply with the building setback required for such uses. Further, for churches there shall be no parking in the front yard.

Main building: 25 ft. Additional: 75 ft. District: 30 ft. 75 ft. is the required setback. 20 ft. is the required parking setback for interior side or rear yards. 75 ft. is the required parking setback for front and exterior side yards. Proposed: 34.17 ft. setback from north; 60.85 ft. setback from the east. 1) *Applicant should adjust the building to meet the setbacks or seek a ZBA variance.* 2) *Provide the measurements for parking setback in a table on the site plan.*

1) Response: The building location will be adjusted to meet the east line setback. A ZBA variance is being sought for the front setback.

2) Response: Parking setbacks will be added to the table on C3.0.

Parking and Loading Requirements

8. Item: Bicycle Parking General Requirements (Sec 5.16). Required Code: No farther than 120 ft. from the entrance being served. When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations. Spaces to be paved and the bike rack shall be inverted "U" design. Shall be accessible via 6 ft. paved sidewalk. Proposed: 190 ft. from building. Multiple locations proposed. Detail provided. 7 ft. sidewalks throughout. Meets Code: No. *Applicant should move the bike rack closer to the building or seek a ZBA variance.*

Response: According to Bicycle Parking General Requirements, 13 bicycle parking spaces are required. Because this is a park, 50 spaces are being provided, 37 spaces in excess of the required quantity. The parking is spread throughout the park in logical locations for use at the Playground Area, as well as near the underpass to the Beach. There is parking for 4 bicycles near the Beach Toilets, intended for the use of residents utilizing the existing bike path along South Lake Road. These are within 120 feet of the main building entrance. 9 additional spaces of bicycle parking will be relocated to within 120 feet from the main building entry to meet the requirement. A ZBA variance will not be required. Dimensions will be shown on sheet C-3.0.

Parking and Loading Requirements

9. Item: Flagpoles (Sec 4.19.2.B). Required Code: Flagpoles may be located within any required front or exterior side yard. Such poles shall be located no closer to a public right-of-way than one-half (1/2) the distance between the right-of-way and the principal building. Proposed: Proposed on photometric plan, not proposed on site plan. Proposed even with the building. Meets Code: Yes. *Show flagpoles on the site plan to confirm compliance. Building permits are required for flagpoles.*

Response: Flag pole will be labeled and dimensioned on sheet C-3.0. A building permit for the flagpole will be obtained by the General Contractor at the appropriate time.

10. Item: Dumpster Enclosure (Sec 21 – 145. (c) Chapter 21 or City Code of Ordinances; Sec 5.15.1). Required Code: Screened from public view; Yes. A wall or fence 1 ft. higher than the height of refuse bin; and no less than 5 ft. on three sides; 6 ft. are proposed. Posts or bumpers to protect the screening; post are proposed. Hard surface pad; Asphalt proposed? Screening Materials: masonry, wood, or evergreen shrubbery; Wood proposed. Matches building façade; No. *Dumpster enclosures are regulated by the façade ordinance and Sec. 5.15 and must match the buildings materials of the main building.*

Response: Dumpster enclosure cladding will match the fiber cement lap siding used on building. Detail will be shown on sheet C-10.2.

Lighting and Photometric Plan (Sec 5.7)

11. Item: Lighting Plan (Sec 5.7.2.A.ii). Required Code: Specifications for all proposed and existing lighting fixtures; photometric data; fixture height; mounting and design; glare control devices (also see Sec 5.7.3.D); type and color rendition of lamps; hours of operation; photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties. Proposed: Provided; provided; not provided; provided; provided; not provided; provided. Meets Code: No. 1) *Provide fixture height for all proposed fixtures.* 2) *Provide note on photometric plan that states the hours of operation for the lighting.* 3) *The City may modify these levels if such modifications are deemed necessary and appropriate for the use and surrounding area. Applicant should request a modification and reason if they so choose.*

Response:

- 1) Fixture heights for all proposed fixtures will be listed on Sheet PE-01.**
- 2) Lights will be operated from dusk to park closing, currently 9:00 pm. This note will be added to Site Photometric Plan Sheet PE-01.**
- 3) Modifications are not needed or requested at this time, but the specified light fixtures are designed to be shielded in the field if required when evaluated on an individual basis after installation.**

12. Item: Maximum height (Sec 5.7.3.A). Required Code: Height not to exceed maximum height of zoning district (or 25 ft. where adjacent to residential districts or uses). Proposed: Not provided. Meets Code: No. *Provide height of fixtures.*

Response: Maximum fixture height is 20 feet. Fixture heights for all fixtures will be listed on Sheet PE-01.

13. Item: Standard Notes (Sec 5.7.3.B). Required Code: Electrical service to light fixtures shall be placed underground. Flashing light shall not be permitted. Only necessary lighting for security purposes and limited operations shall be permitted after a site's hours of operation. Proposed: Not provided. Meets Code: No. *Provide notes on photometric plan.*

Response: Electric service to light fixtures will be placed underground. No flashing lights will be used. Only necessary lighting for security purposes and limited operations will be used after the parks hours of operations, currently 9:00 pm. Standard notes will be provided on Sheet PE-01.

14. Item: Average Light Levels (Sec 5.7.3.E). Required Code: Average light level of the surface being lit to the lowest light of the surface being lit shall not exceed 4:1. Proposed: 4.19:1 proposed. Meets Code: No.

Response: Average light level of the surface being lit to the lowest light of the surface being lit will not exceed 4:1 in compliance with the code, as shown on Sheet PE-01.

15. Item: Minimum Illumination (Sec 5.7.3.K). Required Code: Parking areas: 0.2 min; loading and unloading areas: 0.4 min; walkways: 0.2 min; building entrances, frequent use: 1.0 min; building entrances, infrequent use: 0.2 min. Proposed: 0.2 min; NA; 0.0 min; not provided; not provided. *Provide minimum of 0.2 on walkways and show photometrics for fixtures on the building for the entrances.*

Response: Light levels on walkways will be a minimum of 0.2. Fixtures have been added and photometrics for the walkways and building entrances indicating compliance with required minimum light levels will be shown on Sheet PE-01.

16. Item: Flag Lighting (Sec 5.7.5.C). Required Code: Provided that the illumination is the minimum level necessary, and that the light source is aimed and shielded to direct light only onto the intended target and to prevent glare for motorists and pedestrians. Proposed: Flagpole lighting proposed. Meets Code: Yes? *Provide details on the flagpole lighting.*

Response: Flagpole lighting and details indicating code compliance will be shown on Sheet PE-02.

Other Requirements

17. Item: General layout and dimension of proposed physical improvements. Required Code: Location of all existing and proposed buildings, proposed building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private). Meets Code: Yes. *Site Plan Checklist and DCS require: driveways and buildings within 300 ft. of parcel lot lines to be shown on site plan.*

Response: Driveways and buildings within 300 feet of site property lines will be shown on sheet C-3.0.

18. Item: Property Split or Combination. Required Code: Property combination or split shall be reviewed and approved by the Community Development Department. Proposed: Combination proposed for all parcels in park. Meets Code: Yes. *Parcel combination should be submitted to Assessing Department as soon as possible to confirm that a combination is possible.*

Response: Parcel combination has been submitted to the Assessing Department and is in progress. The possibility of combination has been confirmed.

ENGINEERING REVIEW

General

1. A right-of-Way permit will be required for work within the public right-of-way at South Lake Drive.

Response: The General Contractor will be responsible for obtaining a Right-of-Way Permit for work within the public right-of-way at South Lake Drive.

2. A letter from either the applicant or the applicant's engineer must be submitted with the next submittal highlighting the changes made to the plans addressing each of the comments in the review.

Response: This letter is intended to fulfill this requirement.

Water Main

1. Six (6) inch fire hydrant leads cannot be longer than 25 feet. Provide 8-inch water main on the site.

Response: Water system will be revised on sheet C-5.1 and C-5.2 to comply with requirements.

2. Provide a taping sleeve, valve and well at the connection to the existing water main in South Lake Drive. The existing water service connection is a 2-inch connection.

Response: Water system will be revised on sheet C-5.1 and C-5.2 to comply with requirements.

3. Provide a profile for all proposed water main 8-inch and larger.

Response: A profile for all 8-inch water mains will be provided on sheet C-7.1.

4. Use two 45-degree bends in lieu of any 90-degree water main bends proposed.

Response: Water system will be revised on sheet C-5.1 and C-5.2 to comply with requirements.

5. Utility easements will not be required on this City owned site. Remove the note on sheets C5.1 and C5.2 about easements for water main and sanitary sewer.

Response: Notes will be revised on sheet C-5.1 and C-5.2 to comply with requirements.

6. Provide clarification on sheet C5.2 on the intent and extent of water service lead replacement and delete any extraneous notes for water main. Show how existing water service will connect to proposed water main.

Response: Drawing will be revised on sheet C-5.1 and C-5.2 to comply with requirements.

Sanity Sewer

7. City Water & Sewer staff indicate that the existing force main from the grinder pump is not 3-inch. Contact Water & Sewer and they can assist with field verification on the size of the existing line.

Response: Coordination will be performed with Water and Sewer to identify existing force main size. Sheet C-5.2 will be revised to match the existing size and material.

Paving & Grading

8. Replace the sidewalk detail shown on sheet C10.1 with the City's standard sidewalk cross section.

Response: Sidewalk detail will be updated to City of Novi Standard.

9. Revise the grading in the drainage area 3A rain garden to lower the grade surrounding IN5A and to flatten the slope to the east to allow for a 4- to 6-inch ponding depth.

Response: The parking lot swale leading to inlet 5A will not be a rain garden. Notes will be updated appropriately on sheets C-3.0, and C-3.1.

10. Show area around existing 4-inch storm to be protected, surrounded with silt fence or tree fence to prohibit construction traffic over the pipe.

Response: Silt fence will be added to sheet C-6.0 to protect the undisturbed 4-inch storm.

Storm Sewer

11. Remove General Utility Note number 14 from sheets C5.1 and C5.2.

Response: Note 15 will be removed from sheets C-5.1 and C-5.2.

12. Minimum size of storm sewer collecting surface drainage is 12-inch diameter. Provide 12-inch storm for the EX6 to CB5 and IN5A to CB5 runs. Provide a storm structure south of existing inlet 7, north of the proposed sidewalk and replace 4-inch storm with new 12-inch storm to existing inlet 6.

Response: Storm system will be revised as required by Engineering. Revisions will be shown on sheets C-5.1 and C-5.2.

13. Provide an oil/gas separator at CB4.

Response: CB 4 will be updated to include an oil/gas separator. Notes and details will be added to sheets C-5.1 and C-10.2.

14. Indicate how roof drainage will be conveyed to the storm sewer system.

Response: Roof conductors will be shown and labeled on sheet C-5.1.

Storm Water Management Plan

15. The SWMP must detail the storm water system design, calculation, details, and maintenance as state in the ordinance. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates.

Response: SWMP will be provided as required by Engineering.

16. The engineering Design Manual call for a minimum runoff coefficient of 0.35 to be used for all grass lawns for detention basin sizing.

Response: Pond calculations on sheet C-11.2 will be updated to use a coefficient of 0.35 for grass areas.

17. Provide an emergency spillway or secondary standpipe as required in section 5.6.4.C of the Engineering Design Manual.

Response: Pond overflow spillways will be shown on sheets C-4.2 and C-5.2.

18. Provide a 5-foot wide stone bridge allowing direct access to the standpipe from the bank of the basin during high-water conditions (i.e. stone 6-inches above high water elevation). Provide a detail and/or note as necessary.

Response: Standpipe aggregate and stone access bridges will be shown on sheet C-5.2.

The following must be addressed prior to construction:

19. A pre-construction meeting shall be required prior to the commencement of any site work. Contact Sarah Marchioni at (248) 347-0430 for details on the requirements.

Response: Noted. A pre-construction meeting will be held after a General Contractor is hired.

20. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. There is no fee for this permit.

Response: Noted. A Grading permit will be obtained.

21. An NPDES permit must be obtained from the MDEQ since the site is over 5 acres in size. The MDEQ require an approved plan to be submitted with the Notice of Coverage.

Response: Noted. An MDEQ permit will be obtained.

22. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department for forms and information: (248) 347-0430.

Response: Noted. A Soil Erosion permit will be obtained.

23. A permit for work within the right-of-way South Lake Drive must be obtained from the City of Novi.

Response: Noted. A right-of-way permit will be obtained.

24. Contact the Water & Sewer Division at (248) 347-0498 to determine any applicable water and sewer tap fees.

Response: Noted. Water and Sewer tap fees will be coordinated with the Water and Sewer Division.

25. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the Water & Sewer Senior Manager after the water main plans have been approved.

Response: Noted. A water main permit will be obtained from MDEQ.

26. Construction Inspection fees, amount to be determined once the final construction cost estimate is submitted, must be paid prior to the pre-construction meeting.

Response: Noted. Construction inspection fees will be paid prior to the preconstruction meeting.

27. A street sign financial guarantee in the amount of \$14,400 (\$400 per traffic control sign proposed) must be posted with the Community Development Department.

Response: Noted. A financial guarantee will be posted with the Community Development Department.

The following must be addressed prior to issuance of a Temporary Certificate of Occupancy approval for the development:

28. The amount of the incomplete site work performance guarantee for any outstanding site improvement items, limited to top course of pavement and other minor items, at 1.2 times the amount required to complete the site improvements as specified in the Performance Guarantee Ordinance.

Response: Noted. A performance guarantee will be posted with the City.

29. Spalding DeDecker will prepare the record drawings for this development. The record drawings will be prepared in accordance with Article XII, Design and Construction Standards, Chapter 11 of the Novi Code of Ordinances.

Response: Noted.

30. A Bill of Sale for the utilities conveying the improvements to the City of Novi must be submitted to the Community Development Department. This document is available on our website.

Response: Noted. A Bill of Sale will be executed and submitted to the Community Development Department.

31. Submit to the Community Development Department, Waivers of Lien from any parties involved with the installation of each utility as well as a Sworn Statement listing those parties and stating that all labor and material expenses incurred in connection with the subject construction improvements have been paid.

Response: Waivers will be submitted to the Community Development Department.

32. Submit a Maintenance Bond to the Community Development Department in an amount to be determined from the final cost estimate (equal to 25 percent of the cost of the construction of the utilities to be accepted). This bond must be for a period of two years from the date that the Utility Acceptance Permit is issued by the City of Novi Engineering Division. This document is available on our website.

Response: A maintenance bond will be submitted to the Community Development Department.

LANDSCAPE REVIEW

Landscape Waivers

1. No berm is provided along South Lake Drive. This is supported by staff, although not for the reason given by the applicant.

Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

2. No street trees are provided along South Lake Drive because there is insufficient room for them between the right-of-way and the road. This waiver is supported by staff.

Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

3. Some of the foundation landscaping is provided about 8 feet away from the building. This waiver is supported by staff because the walkway around the building prevents the placement of the landscape right at the foundation.

Response: Waiver requested per above statement. Waiver request will be added to Sheet L-1.0.

4. A mix of trees and shrubs are provided as detention basin landscaping instead of all native shrubs. No reason for this substitution was provided so staff isn't in support of the waiver at this time.

Response: Plan will be adjusted to provide only native shrubs at the detention area, no trees, no waiver requested. Changes will be shown on sheet L1.0.

Adjacent to Public Rights-of-Way: Berm & Buffer (Zoning Sec 5.5.3.B.ii and iii)

1. The required 4 foot high (minimum) berm with 4 foot wide crest berm is not provided. A landscape waiver is required. The justification given is that it would block the view of the lake from the building. The grading plan indicates that the building is 3 feet below the road at the road's crest. As sufficient screening plantings are provided, this waiver request is supported by staff.

Response: Waiver requested per above statement. Waiver request will be added to Sheet L-1.0.

2. The required number of canopy/large evergreen trees and sub canopy trees are provided. *Please clearly indicate the existing trees being used to meet the requirement.*

Response: Existing trees will be clearly shown on plan as noted on sheet L-1.0 and L-1.1.

3. No street trees are provided because there is insufficient room between the right-of-way line and the street. The landscape waiver required for this shortage is supported by the staff.

Response: Waiver requested per above statement. Waiver request will be added to Sheet L-1.0.

Screening between Residential and Non-Residential – Berm & Buffer (Zoning Sec 5.5.3.A)

1. Additional trees have been proposed along the west property line to screen the entry drive and parking areas. If the screening is determined by the city Landscape Architect to be sufficient once construction is complete, additional vegetation may be required.

Response: Note will be added to plan to add additional vegetation if screening is insufficient if determined by city LA on sheet L-1.0.

2. As the two existing Austrian Pines near the east property line appear to be in failing health from *Diplodia*, it is recommended that they be removed at this time and a screening wall or fence with evergreen vegetation planted along it be included in the proposed landscaping.

Response: Per the agreement with the city, existing diseased trees will be removed and infilled with new plantings; no wall to be provided. Changes will be shown on sheet L-1.0.

Street Tree Requirements (Zoning Sec 5.5.3.E.i.c and LDM 1.d)

1. No street trees are provided because there is insufficient room between the right-of-way line and the street. A landscape waiver is required for this insufficiency (13 trees).

Response: Waiver requested per above statement. Waiver request will be added to Sheet L-1.0.

Parking Lot Landscape (Zoning Sec 5.5.3.C) – Commercial Section

1. Interior trees need to be placed within the boundaries of the parking lot, and/or in the parking lot corners. *Please locate all interior trees appropriately.*
Response: Interior trees will be appropriately adjusted. Changes will be shown on sheet L-1.0.
2. Islands need to have unpaved areas for planting at least 10 feet wide and 200 sf per tree planted in it. *Please widen all landscape islands used for plantings.*

Response: Islands will be widened to 10' wide, minimum of 200 SF. Changes will be shown on sheet L-1.0 and L-1.1.

3. The islands used to break up the parking bays need to have deciduous canopy trees planted in them in order to fully meet the requirement. *Please modify the drainage configurations for these islands per the requirement mentioned above and plant a tree within the island. That tree can be one of the required perimeter trees.*

Response: Island drainage configurations will be adjusted so a required tree can be planted in the island. Changes will be shown on sheet L-1.0.

Parking Lot Perimeter Canopy Trees (Zoning Sec 5.5.3.C.(3)(iv))

1. The perimeter should be measured around the exterior edge of the parking lot, and along the exterior edge of the access drive and drive with one bay of parking along it. The 799 lf is not accurate. Please recalculate the perimeter requirements and provide the required number of trees.

Response: The perimeter calculation will be adjusted as noted. Changes will be shown on sheet L-1.0 and L-1.1.

Transformer/Utility Box Screening (Zoning Sec 5.5.3.D)

1. Please screen the transformer box per the detail on Sheet L-1.2.

Response: The transformer will be screened per city detail on sheet L-1.1.

Building Foundation Landscape (Zoning Sec 5.5.3.D)

1. Please check the calculation of the building perimeter to be sure the basis is correct and revise the calculation if necessary. I measured the perimeter as about 432 lf, not 330.

Response: The building perimeter calculation will be adjusted as noted. Changes will be shown on sheet L-1.1.

2. Some of the required foundation landscaping is provided in a swale across the perimeter walkway from the building. A landscape waiver is required for this

location. It is supported by staff as it is close to the building and appears to be at the foundation from South Lake Drive.

Response: Waiver requested per statement above. Waiver request will be added to Sheet L-1.0.

Planting Notations and Details (LDM)

1. Please use species native to Michigan for at least 50% of the foundation and other accessory plantings (this is met for the trees).

Response: Foundation shrubs will be adjusted to be at least 50% native. Changes will be shown on sheet L-1.1.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 3)

1. Please use large native shrubs for the required coverage. A landscape waiver is required to substitute trees for the shrubs. If it is desired to keep the current configuration, please provide justification for the difference and waiver.

Response: Plan will be adjusted to provide only native shrubs at the detention area, no trees, no waiver requested. Changes will be shown on sheet L-1.0.

Irrigation (LDM 1.a.(1)(e) and 2.s)

1. An automatic irrigation system is not required, but there must be a method for the plantings to achieve sufficient water for their establishment and long-term survival. If no system is provided, please provide information and instructions as to how the plantings will get this water.

Response: Irrigation system will be addressed for shrubs and sod adjacent to building, the remaining areas are non-irrigated. Changes will be shown on sheet L-1.1.

Snow Deposit (LDM.2.g)

1. Be sure to use locations for snow storage that won't harm landscaping.

Response: Snow storage locations will be chosen to not harm plants. Changes will be shown on sheet L-1.0 and L-1.1.

Corner Clearance (Zoning Sec 5.9)

1. Please indicate corner clearance zones on the interior intersection to ensure proper visibility as provided.

Response: Corner clearance zones will be added per note. Changes will be shown on sheet L-1.0 and L-1.1.

Landscape Plan Requirements (LDM (2))

1. Item: Sealed by LA. (LDM 2.g). Required Code: Requires original signature. Proposed: Yes. Meets Code: Yes. *Need for final site plans.*

Response: LA Seal will be on landscape plan sheets.

2. Item: Snow Deposit (LDM.2.q). Required Code: Show snow deposit areas on plan. Proposed: Yes. Meets Code: Yes/No. *Please indicate snow deposit areas in main parking lot that won't harm landscape.*

Response: Snow storage location will be adjusted in main parking area to not harm plants. Changes will be shown on sheet L-1.0 and L-1.1.

Parking Area Landscape Requirements (LDM 1.c) & Calculations (LDM 2.o)

3. Item: General requirements (LDM 1.c). Required Code: Clear sight distance within parking islands. No evergreen trees. Proposed: No. Meets Code: No. *Please indicate 25 foot clear vision zone for parking lot entrance to main drive and be sure required visibility is provided.*

Response: 25' clear vision zones will be added per note. Changes will be shown on sheet L-1.0 and L-1.1.

4. Item: Parking lot islands (a, b.i). Required Code: A minimum of 200 sf to qualify; 200 sf per tree in island; 6 inch curbs; islands minimum width 10 feet BOC to BOC. Proposed: Islands less than 10 feet wide. Meets Code: No. 1) *Please widen end caps and interior islands' side-to-side width to 10 feet at back of curb.* 2) *Please label islands with their area in sf.*

1) Response: Islands will be adjusted to have a minimum of 10 ft in width.

2) Response: Islands will be labeled with their areas.

3) Changes will be shown on sheet L-1.1.

5. Item: Contiguous space limit (i). Required Code: Maximum of 15 contiguous spaces. Proposed: Maximum bay is 15 spaces. Meets Code: Yes/No. 1) *Islands must have a tree planted in them to count as a landscaped island.* 2) *Please plant trees in each island intended to meet this requirement.*

1) Response: Islands will be adjusted to have required trees.

2) Changes will be shown on sheet L-1.1.

1. Item: Planting around fire hydrant (d). Required Code: No plantings with matured height greater than 12 feet within 10 feet of fire hydrants. Trees should be located at least 10 feet away from utility structures. Proposed: No. Meets Code: TBD. 1) *Please clearly show all hydrants and utility structures on landscape plan and keep all trees at least 10 feet from them.* 2) *Trees should also be no closer than 5 feet from underground utility lines.*

1) Response: Utilities and hydrants will be shown on sheets L-1.0 and L-1.1.

2) Response: Trees will be spaced at least 5' from utilities.

2. Item: Clear zones (LDM 2.3.(5)). Required Code: 25 feet corner clearance required. Refer to Zoning Section 5.5.9. Proposed: No. Meets Code: No. 1) *Please indicate 25 foot clear vision zone at parking lot/main drive intersection.* 2) *Remove any shrubs taller than 30" or trees from the zone.*

1) Response: Clearance zones will be shown on sheets L-1.0 and L-1.1.

2) Response: No shrubs taller than 30" will be in Clearance zones.

Special Land Use or Non-Residential Use in Any R District (Zoning Sec 5.5.3.C.iii)

3. Item: Total square footage of landscaped islands. Required Code: $2,183 + 0 = 2,183$ sf. Proposed: 3,979 sf. Meets Code: TBD. 1) *Please label island areas within parking lot intended to meet requirements with area in sf.* 2) *It is doubtful that the slope of the large interior parking lot will support hydrophilic plantings for most of the area. Please reconsider the plantings in the island to be sure there is an attractive cover within it.*

1) Response: Square footage will be addressed per note above on sheets L-1.0 and L-1.1.

2) Response: Plant species will be reviewed as to proper plant use.

4. Item: Number of canopy trees required. Required Code: $2,183 / 200 = 11$ trees. Proposed: 20 trees. Meets Code: Yes/No. *Interior trees should be located within the boundaries of the parking lot or in the lots' corner islands. Please locate them in these locations.*

Response: Trees will be adjusted as noted above on sheet L1.1.

5. Item: Perimeter green space. Required Code: 1 tree per 35 lf parking lot perimeter. Proposed: 23. Meets Code: No. 1) *The parking lot perimeter is to be measured around the outer edge of all paved parking surfaces (not adjacent sidewalks).* 2) *Please re-measure the perimeter, recalculate the required trees*

and provide all required trees along the edges of the parking areas/access drives.

- 1) Response: Perimeter will be adjusted as noted above on sheet L1.1.**
- 2) Response: Trees will be recalculated per note above.**

Berms: Residential Adjacent to Non-Residential (Sec 5.5.3.A) & (LDM 1.a)

6. Item: Planting requirements (LDM 1.a). Required Code: None. Proposed: Additional trees proposed along west property line. No additional plantings proposed along east property line. 1) *Additional screening trees are provided along the west property line to increase the opacity. These appear satisfactory but may have to be augmented once planting is complete.* 2) *Only existing landscaping is shown on the east side. The existing Austrian Pines are showing signs of Diplodia which is usually fatal. The only other trees between the adjacent property and what will be elevated parking are volunteer boxelders which won't provide much winter opacity.* 3) *Please provide additional screening landscaping along the east side that will provide additional screening.*

Response: Per the agreement with the city, existing diseased trees will be removed and infilled with new plantings; no wall to be provided. Changes will be shown on sheet L-1.0.

Berms: Adjacent to Public Rights-of-Way (Sec 5.5.B) & (LDM 1.b)

7. Item: Berm requirements (Zoning Sec 5.5.3.A.(5)). Required Code: 4 foot tall berm with 4 foot crest is required for residential zoning. Proposed: None. Meets Code: No. 1) *A landscape waiver will be required to not provide the required berm.* 2) *Please provide justification for any waiver request.*

Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

Cross-Section of Berms (LDM 2.j)

8. Item: Slope, height and width. Required Code: Label contour lines; maximum 33%; constructed of loam; 6 inch top layer of topsoil. *If any berms are provided, please provide a representative berm detail for each.*

Response: N/ A

Walls (LDM 2.k & Zoning Sec 5.5.3.vi)

9. Item: Walls greater than 3 ½ feet should be designed and sealed by an Engineer. 1) *No wall details are provided on 10.1 as indicated on Sheet L-1.0.* 2) *Standard Redi-Rock wall details provided at end of set.*

- 1) **Response: Typical wall details will be shown on sheet C-10.3. Site-specific engineer-stamped drawings will be obtained by the GC and submitted for review during the building permit process.**
- 2) **Noted.**

ROW Landscape Screening Requirements (Sec 5.5.3.B.ii)

10. Item: Minimum berm crest width. Required Code: 4 feet. Proposed: None. Meets Code: No. *A landscape waiver is required to not provide the required berm. Please provide justification if a berm is requested.*

Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

11. Item: Minimum berm height (9). Required Code: 4 feet. Proposed: None. Meets Code: No. *See above.*

Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

12. Item: Canopy deciduous or large evergreen trees (Notes (1) (10)). Required Code: 1 tree per 40 lf; $(285 + 217 - 34) / 25 = 19$ trees. Proposed: 5 new evergreens + 7 existing trees. Meets Code: Yes. *Please clearly indicate the 7 trees that are counted toward this requirement.*

Response: Calculations will be addressed per note above. Changes will be shown on sheet L-1.0.

13. Item: Canopy deciduous trees in areas between sidewalk and curb (Novi Street Tree List). Required Code: 1 tree per 35 lf; $(285 + 217 - 34) / 35 = 13$ trees. Proposed: None. Meets Code: No. 1) *No trees are provided due to insufficient room between the right-of-way and the edge of pavement.* 2) *This requires a landscape waiver request. The request is supported by the staff.*

1) Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

2) Response: Waiver requested due to insufficient room between ROW and road. Waiver request will be added to Sheet L-1.0.

Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d (2)

14. Item: Screening of outdoor storage, loading/unloading (Zoning Sec 3.14, 3.15, 4.55, 4.56, 5.5). Proposed: No. 1) *No screening/loading areas are provided so no screening is required.* 2) *If loading is provided, appropriate screening must be provided.*

1) Response: No loading zone is required or provided for this building.

2) Response: N/A.

15. Item: Transformers/utility boxes (LDM 1.e from 1 through 5). Required Code: A minimum of 2 feet separation between box and the plants. Ground cover below 4 inches is allowed up to pad. No plan materials within 8 feet from the doors. Proposed: No. Meets Code: No. *Please show required landscape screening around the transformer per the detail provided on L-1.2.*

Response: Transformer screening will be revised on sheet L-1.1.

Building Foundation Landscape Requirements (Sec 5.5.3.D)

16. Item: Interior site landscaping sf. Required Code: Equals to entire perimeter of the building x 8 with a minimum width of 4 feet (432 lf x 8 ft = 3,456 sf). Proposed: 4,021 sf. Meets Code: TBD. 1) *Please correct perimeter and revise calculations.* 2) *Please label each area of foundation landscaping provided in sf.* 3) *A landscape waiver is required to use the swale as foundation landscaping. Due to its close proximity to the building, this is supported by staff.*

1) Response: Calculations will modified to comply with note above. Changes will be shown on sheet L-1.1.

2) Response: Labels will be shown on sheet L-1.1.

3) Response: Waiver requested per statement above. Waiver request will be added to Sheet L-1.0.

Detention/Retention Basin Requirements (Sec 5.5.3.E.iv)

17. Item: Planting requirements (sec 5.5.3.E.iv). Required Code: Clusters shall cover 70 – 75% of the basin area. 10 foot to 14 foot tall grass along sides of basin. Refer to wetland for basin mix. Proposed: A mix of trees and shrubs is provided to meet the required coverage. Meets Code: No. 1) *Please show HWL on ponds and locate shrubs at or near the high-water level.* 2) *A waiver is required to use trees instead of large native shrubs. Please either use shrubs to meet the requirement or provide justification for the waiver request.*

1) Response: HWL will be shown on sheet L-1.1., and shrubs have been moved closer to this line.

2) Response: No trees will be requested, only shrubs will be used. No waiver is requested.

18. Item: Irrigation Plan (LDM 2.s). Required Code: A method for ensuring that plantings receive sufficient watering for establishment and long-term survival must be required. Proposed: None. Meets Code: No. 1) *If an irrigation system is to be provided, the plan for that system should be provided with Final Site Plans.* 2) *If a system is not provided, notes regarding how plantings will receive*

sufficient water for establishment and survival must be part of the Final Site Plans.

- 1) Response: Irrigation system will be provided for shrubs and sod adjacent to building, the remaining areas will be non-irrigated. Irrigation areas will be shown and labeled on L1.1.**
- 2) Response: An irrigation plan will be provided.**

Plant List (LDM 2.h) – Include All Cost Estimates

19. Item: Botanical and common names. Required Code: Refer to LDM suggested plant list. Proposed: No. Meets Code: No. *Please use at least 50% species native to Michigan.*

Response: Comments will be addressed to comply with notes above. Changes will be shown on sheet L-1.2.

20. Item: Cost estimate (LDM 2.t). Required Code: For all new plantings, mulch and sod as listed on the plan. Proposed: Yes. Meets Code: No. *Required for final site plans.*

Response: A cost estimate will be shown on sheet L1.2 including all plantings, mulch, and sod.

Planting Details/Info (LDM 2.i) – Utilize Novi Standard Details

21. Item: Canopy deciduous tree. Required Code: Refer to LDM for detail drawings. Proposed: Yes. Meets Code: Yes. 1) *Please add a callout stating that the root ball dirt should be removed to expose the root flare.* 2) *If desired, the mulch depth can be reduced to 3 inches.*

Response: Details will be revised on sheet L-1.2.

22. Item: Evergreen tree. Required Code: Refer to LDM for detail drawings. Proposed: Yes. Meets Code: Yes. *See above.*

Response: Noted.

23. Item: Shrub. Required Code: Refer to LDM for detail drawings. Proposed: Yes. Meets Code: Yes. *If desired, the mulch depth can be reduced to 2 inches.*

Response: Noted.

Other Plant Material Requirements (LDM 3)

24. Item: Recommended trees for planting under overhead utilities (LDM 3.f).
Required Code: Label the distance from the overhead utilities. Proposed: No.
Meets Code: TBD. *Please clearly indicate overhead lines on Landscape Plan.*

Response: Overhead lines will be labeled per note above on sheets L-1.0 and L-1.1.

TRAFFIC REVIEW – INTERNAL SITE OPERATIONS

General Traffic Flow

1. The roadway through the site has adequate width and radii dimensions. *The applicant should provide details for the bicycle lane including pavement marking color and pavement marking details.*

Response: Pavement marking for the bike lane will be in accordance with MDOT / MMUTCD standards. Notes will be added to sheets C-3.1 and C-3.2.

2. The proposed trash enclosure may interfere with the easternmost parking space along the south parking bay. The applicant should review the location of the trash enclosure and updated, as applicable, so that it does not interfere with parking or traffic operations, as indicated in Section 5.4.2.A of the Zoning Ordinance.

Response: Parking will be revised as required to comply with 5.4.2.A of the Zoning Ordinance. Changes will be shown on sheet C-3.1.

Parking Facilities

3. Parking spaces are generally in compliance with City standards. However, the utilization of 6 inch bumper blocks for 19 foot spaces should be revised. The bumper blocks can be lowered to 4 inches in height such that the face of the bumper block is 2 feet in front of the curb, or, the bumper blocks can be removed and the curb raised to 6 inches in height. Both aforementioned options are compliant with City standards; however, the currently proposed bumper blocks are not in compliance as they effectively shorten the parking space to 17 feet which requires a 4 inch curb/bumper block. Please consult section 5.3 of the City's Zoning Ordinance for further information.

Response: Detail will be updated on sheet C-10.1 to reflect a 4" block.

4. 4 inch bumper blocks should be provided in front of barrier free parking spaces where the sidewalk is flush with the pavement.

Response: Detail will be updated on sheet C-10.1 to reflect a 4" block.

5. Parking end islands are required to be 10 feet in width. The current proposed end island widths are both eight and nine feet. Please consult section 5.3 of the City's Zoning Ordinance for further information.

Response: Parking island widths will be updated to be 10' feet in width on sheet C-3.1

6. A total of 13 bicycle parking spaces are required. The applicant has provided 50 bicycle spaces. The proposed bicycle parking is generally compliant with City standards. However, for the bicycle parking area on the south side of the site, the offset between the southernmost bicycle parking space and the sidewalk should be increased by 2 feet.

Response: Detail on sheet C-3.2 will be updated accordingly.

7. Bicycle parking location to be a maximum of 120 feet from the main entrance. The applicant is proposing a location greater than 120 feet. The applicant should modify the location or seek a ZBA variance.

Response: Bicycle parking will be relocated to within 120 from the building entry. Dimensions will be shown on sheet C-3.0.

Sidewalk Requirements

8. Sidewalk widths throughout the site are in generally in compliance with City standards. However the applicant should provide additional details regarding the columns surrounding the community center building in order to verify that there is a minimum path width of 5 feet that is not obstructed by the columns.

Response: The paved area under the canopy is an extension of the building patio and is NOT intended to function as a sidewalk. The path of egress is a direct exit from the Camp Room to the North or South and is perpendicular to the building. The spacing between the columns to either side of the aforementioned egress doors is a minimum of 16'-0". No door is obstructed by a column, nor is the path of egress. All dimensions of columns and their relationship to the building and exits are indicated on the Architectural Floor Plan on Sheet A-101.

9. Label locations and details of ADA compliant sidewalk ramps.

Response: Locations and details of ADA spaces will be shown on sheets C-4.1 and C-4.2.

10. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD).

Response: Noted. Signage schedule on sheet C-3.1 will be updated with MMUTCD references.

11. The applicant should provide details for all proposed pavement markings throughout the site.

Response: Pavement marking details will be shown on sheets C-10.2 and C-10.5.

12. The notes related to pavement markings for the barrier free parking spaces are conflicting between the "General Notes" section and the callouts on the site plan. The "General Notes" section is correct and all callouts should be updated for consistency. The "General Notes" section indicates a white international symbol for accessibility (which is compliant with MMUTCD standards); however, the callouts indicates that the symbol will be blue.

Response: Pavement marking callouts will be updated on sheet C-3.1, and details will be shown on sheet C-10.5.

13. The applicant is required to provide pavement marking details for the proposed bicycle lane.

Response: Pavement marking for the bike lane will be in accordance with MDOT / MMUTCD standards. Notes will be added to sheets C-3.1 and C-3.2.

14. If the applicant intends to provide vehicle travel lane pavement markings, as indicated, please provide details for those markings. If these are intended to be directional arrows only, and not striped, they should be hollow.

Response: Pavement marking for the bike lane and travel lanes will be in accordance with MDOT / MMUTCD standards. Directional arrows will be deleted. Notes will be added to sheets C-3.1 and C-3.2.

15. The applicant should increase the size of the proposed stop sign to 30" x 30".

Response: Stop sign size will be updated in the table on sheet C-3.1.

16. TH applicant could remove the stop sign from the exit of the parking lot onto the site driveway.

Response: Noted. Stop sign is intended to protect pedestrians utilizing the crosswalk from the park to the building.

17. The applicant should provide additional details regarding the "Path Ends" and "Road Narrows" signs. The sign to indicate that the bicycle lane ends should be a R3-17 sign with a R3-17bpP plaque. The sign to indicate that the road narrows should be indicated by a W5-1 sign. The applicant should provide details related to the spacing of these two signs.

Response: Signage schedule on sheet C-3.1 will be updated with correct MMUTCD references.

18. The applicant should provide additional details regarding the "No Bicycles" and "Pedestrians Only" signs. There are no such signs listed in the MMUTCD so full details will be required for these signs. The applicant should also consider that these signs are placed on the paths a significant distance in front of bicycle parking areas. The applicant could consider other means for restricting bicycle riding throughout the Community Center Building area.

Response: Signage schedule on sheet C-3.1 will be updated and details added for signage that is not part of MMUTCD Standards.

19. The "No Bicycle" signs near the pedestrian tunnel are in advance of the bike racks. If bikes are not permitted beyond the signs, the applicant should indicate how the bike racks will be accessed. Alternatively, the signs and-or bike racks could be relocated to reduce confusion.

Response: Sign locations will be revised on sheet C-3.1 to allow access to the bike racks.

20. The warning signs for the crosswalk on the south end of the site should be placed in front of the crosswalk for oncoming vehicles. The signs should also be placed on both sides of the crosswalk thereby increasing the total crosswalk warning signs to eight.

Response: Crosswalk warning signs will be relocated on sheet C-3.2.

21. The applicant could consider removing the "No Parking Fire Lane" signs from the parking lot of the Community Center Building as vehicles are not anticipated to park on the corner.

Response: Fire lane signage will be revised on sheet C-3.1.

22. The City requires signs to be U-channel in shape and 3# in size. Please revise plans to indicate such.

Response: Sign details on C-10.1 will be updated to reflect the correct u-channel.

FAÇADE REVIEW

1. Community Center – The minimum percentage of Brick is not provided and the percentage of Standing Seam Metal Roof exceeds the maximum amount allowed by the Ordinance on the north and south facades. A Section 9 Waiver is required for these deviations. In this case the extensive use of Stone is visually equivalent to the minimum requirement for Brick. The building exhibits well-balanced proportions and composition of materials and the small overage of Standing Seam Metal is not detrimental to the building's appearance. The colored rendering provided appears to indicate carefully coordinated earth-toned colors. A Section 9 Waiver is therefore recommended for the underage of Brick and overage of Standing Seam Metal.

Response: A Section 9 Waiver was requested. A note requesting the waiver can be found on Sheet A-201.

2. The Façade Ordinance requires that roof top equipment be screened from view from all vantage points both on and off site using approved materials.

Response: All mechanical equipment is contained within a fully enclosed roof well, surrounded on all sides by a minimum of 6 feet of vertical walls and buried within the center of the metal roof. This is indicated on both the Exterior Elevations (sheet A-201) and the Roof Plan (sheet A-121)

3. Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board will be compared to materials delivered to the site. It is the applicant's responsibility to request the inspection of each façade material at the appropriate time.

Response: Noted.

FIRE MARSHAL REVIEW

1. Hydrant spacing is not as the crow flies. Hydrant spacing no greater than 300 feet hydrant to hydrant. City Ordinance 11-68(F)(1)c.

Response: Hydrant spacing will be revised to be 300 ft or less along the water main run on sheet C-5.1.

2. FDC location must be within 100 feet from a fire hydrant. City Ordinance 912.23.

Response: FDC will be located within 100 feet of a fire hydrant on sheet C-5.1.

City of Novi
Attn: Ms. Kirsten Mellem
NSA Project No. 217404.00
August 18, 2017
Page 26

3. No fire suppression plans available for review.

Response: A conceptual Fire Suppression Plan will be submitted on Sheet FP-101 for permit review to show design intent. A complete fire suppression plan will be provided by the fire suppression contractor and issued for Fire Marshal review and comment as a deferred submittal after the construction contract has been awarded.

Prepared by:
NSA Architects, Engineers, Planners



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Senior Associate
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Cc: B. McCullough, R. Petty, J. Muck, T. Ringle – City of Novi; F. Ray, R. Baker, H. Williams, J. Breznau, J. Marji – NSA; S. Sorensen, B. Jenkins, B. Klein – PEA; File

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