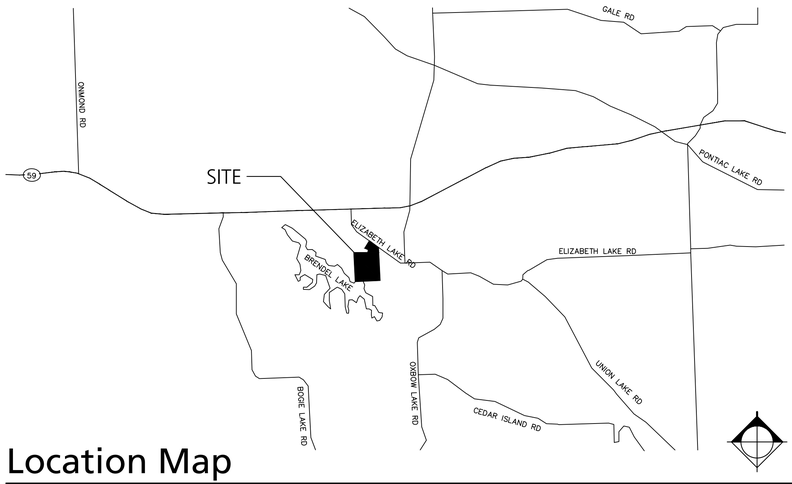
STANLEY PARK IMPROVEMENTS (MDNR Project Np. 26-01868)

Date Issued: January 04, 2024

BIDDING

10785 Elizabeth Lake Rd, White Lake Township, Michigan



Location Map

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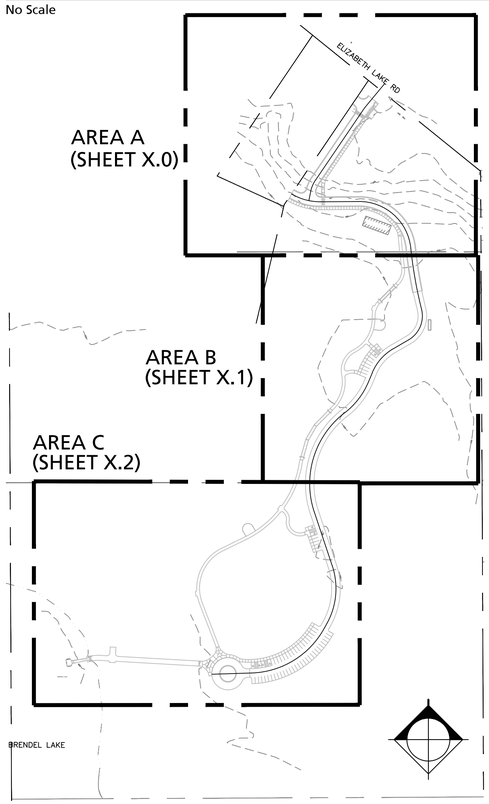

Key Map

No Scale

Sheet Index

Consultant Team

Beckett&Raeder
Landscape Architecture Planning & Engineering

Beckett & Raeder, Inc.
535 West William, Suite 101
Ann Arbor, MI 48103

734 663.2622 ph
734 663.6759 fx

KEM-TEC A GROUP OF COMPANIES
ENGINEERING . SURVEYING . ENVIRONMENTAL SERVICES

Kem-Tec & Associates
22556 Gratiot Ave
Eastpointe, MI 48201

586 772.2222 ph
586 772.4048 fx

White Lake Charter Township
7525 Highland Rd
White Lake, MI 48383

248 698.3300 ph

General Requirements Notes

1. The White Lake Township Stanley Park Improvements project is partially funded by The Land and Water Conservation Fund (LWCF) program, utilizing Federal fund administered locally by the Michigan Department of Natural Resources (MDNR). The Contractor shall comply with all LWCF grant program and agency requirements including but not limited to:
   a. Build America, Buy America requirements, as required by Section 70914 of the Bipartisan Infrastructure Law
   b. Americans with Disabilities Act (ADA) of 2010, as amended.
   c. 2013 Access Board's Final Guidelines for Outdoor Developed Areas (ODA).
2. The US Fish and Wildlife Services (USFWS) has Identified that Stanley Park contains habitat suitable for several protected status species. As a result, the USFWS conducted an Endangered Species Act (ESA) of 1973. Section 7 Formal Consultation and produced a USFWS Ecological Services Program Biological Opinion. The Biological Opinion is incorporated into these contract documents as an appendix in this project manual. The Contractor shall conform with all requirements contained within the Biological Opinion.

Preceding and Concurrent Work Notes

1. Prior to Contract initiation, Owner will perform cutting of trees and brush indicated for removal on the plans. Project Contractor will remain responsible for stump and root removal. Contractor shall inspect the site prior to bidding to confirm completeness of Owner's work. Any additional removal required based on project plans shall be included in the Contractor's bid price.
2. Elizabeth Lake Road Reconstruction project (by others) will be constructed concurrently with this Stanley Park Improvements project. Contractors shall mutually coordinate construction activities so as to not hinder each other's work.

Bid Alternates

Alternate 1 - Road Paving. Provide and construct “Bituminous Paving - Standard Duty (Service Road)” for roadway and parking areas indicated as base bid “Gravel Drive”. Portions of roadway included in Alternate 1 paving will be edged with 2' width gravel shoulder in lieu of concrete curb and gutter. Refer to Drawings for additional information.

Alternate 2 -Parking. Provide and construct two (2) additional 9-space parking areas in the central portion of the park. Alternate also includes related grading, sidewalks, pathways, and signage associated with the parking areas. Refer to Drawings for additional information

Alternate 3 - Timber Bollards. Provide and construct timber traffic control bollards at roadway shoulders. Refer to Drawings for additional information.

Alternate 4 - Exercise Station. Provide and construct Exercise Station 'B' in the central area of the park, including associated grading, timber edge, and safety surfacing. Refer to Drawings for additional information.

Alternate 5 - Sidewalk. Provide and construct sidewalk as indicated on Drawings, north and west of remnant block building, including associated grading and restoration. Refer to Drawings for additional information.

Miss Dig Notes

Contractor shall call Miss Dig (811) a minimum of three working days prior to start of construction, excluding weekends and holidays.

811 Know what's below. Call before you dig.

Abbreviations

BIT	Bituminous
AC	Acres
ADA	American's with Disabilites Act
BM	Bench Mark
BIT	Bituminous
BC	Bottom of Curb
CAL	Caliper
CB	Catch Basin
DIA	Diameter
ELEV	ELevation
EX	Existing
FES	Flared end section
GV	Gate Valve
HD	Heavy Duty
HP	High Point
INV	Invert Elevation
LOD	Limit of Disturbance
LP	Low Point
MAX	Maximum
MDNR	Michigan Department of Natural Resources
MIN	Minimum
NRCS	Natural Resources Conservation Services
OC	On Center
OHWM	Ordinary High Water Mark
PR	Proposed
SESC	Soil Erosion and Sediment Control
SD	Standard Duty
TC	Top of Curb
TYP	Typical
UP	Utility Pole
VOL	Volume

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Ann Arbor, MI 48103

734 663.2622 ph
734 663.6759 fx

Consultants

STATE OF MICHIGAN BRIAN D. BARRICK LANDSCAPE ARCHITECT No. 1313 REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN CHRISTOPHER G. DEGOOD ENGINEER No. 6201049611 LICENSED PROFESSIONAL ENGINEER

Seal

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Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

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Approved: BB

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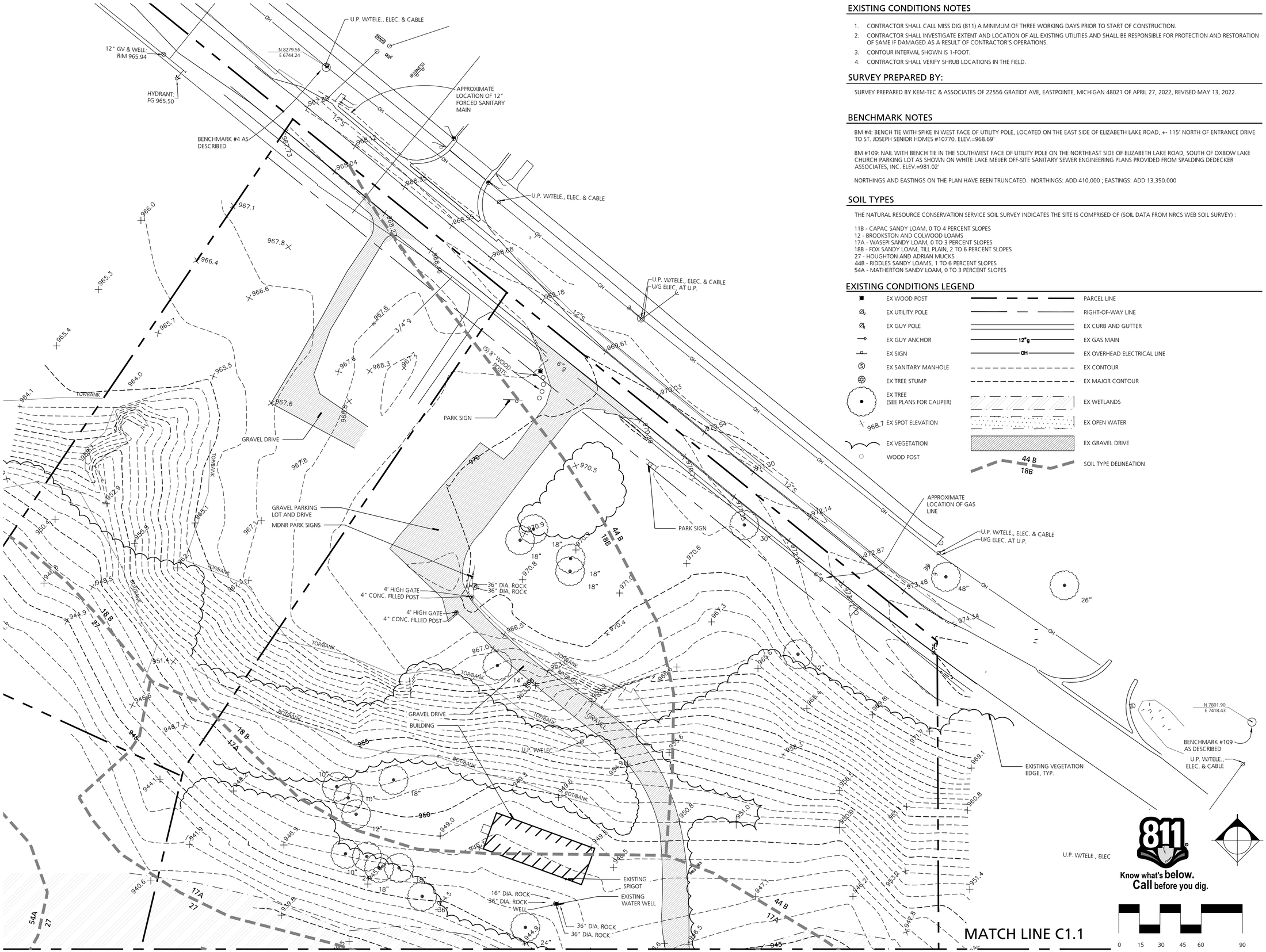
C0.0 COVER SHEET



EXISTING CONDITIONS NOTES

1. CONTRACTOR SHALL CALL MISS DIG (811) A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL INVESTIGATE EXTENT AND LOCATION OF ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR PROTECTION AND RESTORATION OF SAME IF DAMAGED AS A RESULT OF CONTRACTOR'S OPERATIONS.
3. CONTOUR INTERVAL SHOWN IS 1-FOOT.
4. CONTRACTOR SHALL VERIFY SHRUB LOCATIONS IN THE FIELD.

SURVEY PREPARED BY:

SURVEY PREPARED BY KEM-TEC & ASSOCIATES OF 22556 GRATIOT AVE, EASTPOINTE, MICHIGAN 48021 OF APRIL 27, 2022, REVISED MAY 13, 2022.

BENCHMARK NOTES

BM #4: BENCH TIE WITH SPIKE IN WEST FACE OF UTILITY POLE, LOCATED ON THE EAST SIDE OF ELIZABETH LAKE ROAD, +- 115' NORTH OF ENTRANCE DRIVE TO ST. JOSEPH SENIOR HOMES #10770. ELEV.=968.69'

BM #109: NAIL WITH BENCH TIE IN THE SOUTHWEST FACE OF UTILITY POLE ON THE NORTHEAST SIDE OF ELIZABETH LAKE ROAD, SOUTH OF OXBOW LAKE CHURCH PARKING LOT AS SHOWN ON WHITE LAKE MEIJER OFF-SITE SANITARY SEWER ENGINEERING PLANS PROVIDED FROM SPALDING DEDECKER ASSOCIATES, INC. ELEV.=981.02'

NORTHINGS AND EASTINGS ON THE PLAN HAVE BEEN TRUNCATED. NORTHINGS: ADD 410,000 ; EASTINGS: ADD 13,350.000

SOIL TYPES

THE NATURAL RESOURCE CONSERVATION SERVICE SOIL SURVEY INDICATES THE SITE IS COMPRISED OF (SOIL DATA FROM NRCS WEB SOIL SURVEY) :

11B - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES
12 - BROOKSTON AND COLWOOD LOAMS
17A - WASEPI SANDY LOAM, 0 TO 3 PERCENT SLOPES
18B - FOX SANDY LOAM, TILL PLAIN, 2 TO 6 PERCENT SLOPES
27 - HOUGHTON AND ADRIAN MUCKS
44B - RIDDLES SANDY LOAMS, 1 TO 6 PERCENT SLOPES
54A - MATHERTON SANDY LOAM, 0 TO 3 PERCENT SLOPES

EXISTING CONDITIONS LEGEND

EX WOOD POST	PARCEL LINE
EX UTILITY POLE	RIGHT-OF-WAY LINE
EX GUY POLE	EX CURB AND GUTTER
EX GUY ANCHOR	EX GAS MAIN
EX SIGN	EX OVERHEAD ELECTRICAL LINE
EX SANITARY MANHOLE	EX CONTOUR
EX TREE STUMP	EX MAJOR CONTOUR
EX TREE (SEE PLANS FOR CALIPER)	EX WETLANDS
EX SPOT ELEVATION	EX OPEN WATER
EX VEGETATION	EX GRAVEL DRIVE
WOOD POST	SOIL TYPE DELINEATION

Beckett&Raeder
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Ann Arbor, MI 48103

734 663.2622 ph
734 663.6759 fx

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C1.0 EXISTING CONDITIONS PLAN - AREA A

EXISTING CONDITIONS NOTES & LEGENDS

FOR EXISTING CONDITIONS NOTES AND LEGENDS SEE SHEET C1.0

Know what's **below.**
Call before you dig.

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734 663.6759 fx

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C1.1 EXISTING CONDITIONS PLAN - AREA B

EXISTING CONDITIONS NOTES & LEGENDS

FOR EXISTING CONDITIONS NOTES AND LEGENDS SEE SHEET C1.0

B R
Beckett&Raeder
Landscape Architecture Planning, Engineering & Environmental Services

Beckett & Raeder, Inc.
535 West William, Suite 101
Ann Arbor, MI 48103

734 663.2622 ph
734 663.6759 fx

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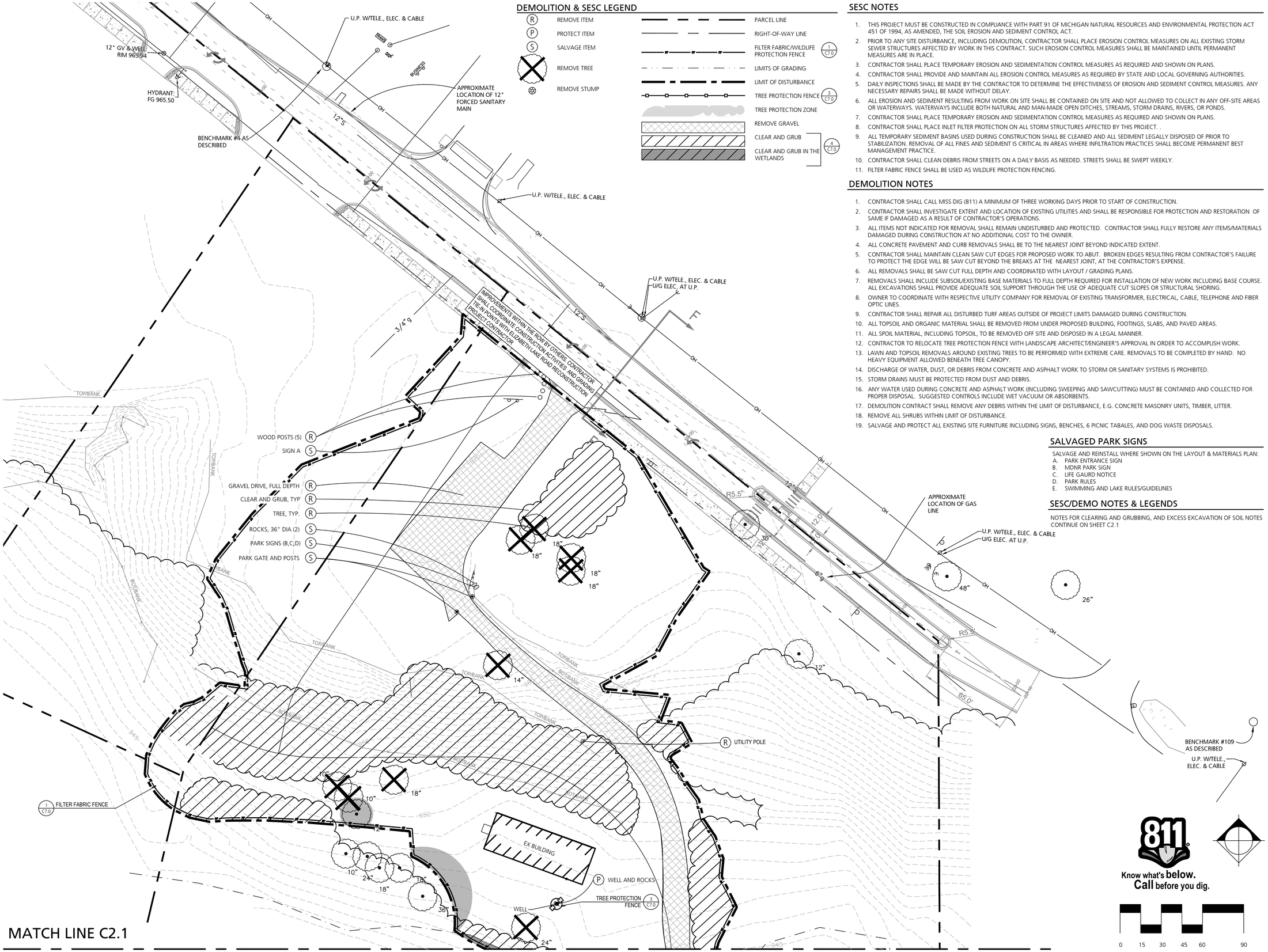
C1.2 EXISTING CONDITIONS PLAN - AREA C



DEMOLITION & SESC LEGEND

- R REMOVE ITEM
- P PROTECT ITEM
- S SALVAGE ITEM
- REMOVE TREE
- REMOVE STUMP
- PARCEL LINE
- RIGHT-OF-WAY LINE
- FILTER FABRIC/WILDLIFE PROTECTION FENCE (1 / C7.0)
- LIMITS OF GRADING
- LIMIT OF DISTURBANCE
- TREE PROTECTION FENCE (3 / C7.0)
- TREE PROTECTION ZONE
- REMOVE GRAVEL
- CLEAR AND GRUB
- CLEAR AND GRUB IN THE WETLANDS (4 / C7.0)

SESC NOTES

1. THIS PROJECT MUST BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF MICHIGAN NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT 451 OF 1994, AS AMENDED, THE SOIL EROSION AND SEDIMENT CONTROL ACT.
2. PRIOR TO ANY SITE DISTURBANCE, INCLUDING DEMOLITION, CONTRACTOR SHALL PLACE EROSION CONTROL MEASURES ON ALL EXISTING STORM SEWER STRUCTURES AFFECTED BY WORK IN THIS CONTRACT. SUCH EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT MEASURES ARE IN PLACE.
3. CONTRACTOR SHALL PLACE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND SHOWN ON PLANS.
4. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL EROSION CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL GOVERNING AUTHORITIES.
5. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
6. ALL EROSION AND SEDIMENT RESULTING FROM WORK ON SITE SHALL BE CONTAINED ON SITE AND NOT ALLOWED TO COLLECT IN ANY OFF-SITE AREAS OR WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, RIVERS, OR PONDS.
7. CONTRACTOR SHALL PLACE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND SHOWN ON PLANS.
8. CONTRACTOR SHALL PLACE INLET FILTER PROTECTION ON ALL STORM STRUCTURES AFFECTED BY THIS PROJECT. .
9. ALL TEMPORARY SEDIMENT BASINS USED DURING CONSTRUCTION SHALL BE CLEANED AND ALL SEDIMENT LEGALLY DISPOSED OF PRIOR TO STABILIZATION. REMOVAL OF ALL FINES AND SEDIMENT IS CRITICAL IN AREAS WHERE INFILTRATION PRACTICES SHALL BECOME PERMANENT BEST MANAGEMENT PRACTICE.
10. CONTRACTOR SHALL CLEAN DEBRIS FROM STREETS ON A DAILY BASIS AS NEEDED. STREETS SHALL BE SWEPT WEEKLY.
11. FILTER FABRIC FENCE SHALL BE USED AS WILDLIFE PROTECTION FENCING.

DEMOLITION NOTES

1. CONTRACTOR SHALL CALL MISS DIG (811) A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL INVESTIGATE EXTENT AND LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR PROTECTION AND RESTORATION OF SAME IF DAMAGED AS A RESULT OF CONTRACTOR'S OPERATIONS.
3. ALL ITEMS NOT INDICATED FOR REMOVAL SHALL REMAIN UNDISTURBED AND PROTECTED. CONTRACTOR SHALL FULLY RESTORE ANY ITEMS/MATERIALS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
4. ALL CONCRETE PAVEMENT AND CURB REMOVALS SHALL BE TO THE NEAREST JOINT BEYOND INDICATED EXTENT.
5. CONTRACTOR SHALL MAINTAIN CLEAN SAW CUT EDGES FOR PROPOSED WORK TO ABUT. BROKEN EDGES RESULTING FROM CONTRACTOR'S FAILURE TO PROTECT THE EDGE WILL BE SAW CUT BEYOND THE BREAKS AT THE NEAREST JOINT, AT THE CONTRACTOR'S EXPENSE.
6. ALL REMOVALS SHALL BE SAW CUT FULL DEPTH AND COORDINATED WITH LAYOUT / GRADING PLANS.
7. REMOVALS SHALL INCLUDE SUBSOIL/EXISTING BASE MATERIALS TO FULL DEPTH REQUIRED FOR INSTALLATION OF NEW WORK INCLUDING BASE COURSE. ALL EXCAVATIONS SHALL PROVIDE ADEQUATE SOIL SUPPORT THROUGH THE USE OF ADEQUATE CUT SLOPES OR STRUCTURAL SHORING.
8. OWNER TO COORDINATE WITH RESPECTIVE UTILITY COMPANY FOR REMOVAL OF EXISTING TRANSFORMER, ELECTRICAL, CABLE, TELEPHONE AND FIBER OPTIC LINES.
9. CONTRACTOR SHALL REPAIR ALL DISTURBED TURF AREAS OUTSIDE OF PROJECT LIMITS DAMAGED DURING CONSTRUCTION.
10. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE REMOVED FROM UNDER PROPOSED BUILDING, FOOTINGS, SLABS, AND PAVED AREAS.
11. ALL SPOIL MATERIAL, INCLUDING TOPSOIL, TO BE REMOVED OFF SITE AND DISPOSED IN A LEGAL MANNER.
12. CONTRACTOR TO RELOCATE TREE PROTECTION FENCE WITH LANDSCAPE ARCHITECT/ENGINEER'S APPROVAL IN ORDER TO ACCOMPLISH WORK.
13. LAWN AND TOPSOIL REMOVALS AROUND EXISTING TREES TO BE PERFORMED WITH EXTREME CARE. REMOVALS TO BE COMPLETED BY HAND. NO HEAVY EQUIPMENT ALLOWED BENEATH TREE CANOPY.
14. DISCHARGE OF WATER, DUST, OR DEBRIS FROM CONCRETE AND ASPHALT WORK TO STORM OR SANITARY SYSTEMS IS PROHIBITED.
15. STORM DRAINS MUST BE PROTECTED FROM DUST AND DEBRIS.
16. ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAWCUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM OR ABSORBENTS.
17. DEMOLITION CONTRACT SHALL REMOVE ANY DEBRIS WITHIN THE LIMIT OF DISTURBANCE, E.G. CONCRETE MASONRY UNITS, TIMBER, LITTER.
18. REMOVE ALL SHRUBS WITHIN LIMIT OF DISTURBANCE.
19. SALVAGE AND PROTECT ALL EXISTING SITE FURNITURE INCLUDING SIGNS, BENCHES, 6 PICNIC TABALES, AND DOG WASTE DISPOSALS.

SALVAGED PARK SIGNS

SALVAGE AND REINSTALL WHERE SHOWN ON THE LAYOUT & MATERIALS PLAN:

A. PARK ENTRANCE SIGN
B. MDNR PARK SIGN
C. LIFE GAURD NOTICE
D. PARK RULES
E. SWIMMING AND LAKE RULES/GUIDELINES

SESC/DEMO NOTES & LEGENDS

NOTES FOR CLEARING AND GRUBBING, AND EXCESS EXCAVATION OF SOIL NOTES CONTINUE ON SHEET C2.1

B R
Beckett&Raeder
Landscape Architecture Planning, Engineering & Environmental Services

Beckett & Raeder, Inc.
535 West William, Suite 101
Ann Arbor, MI 48103

734 663.2622 ph
734 663.6759 fx

Consultants

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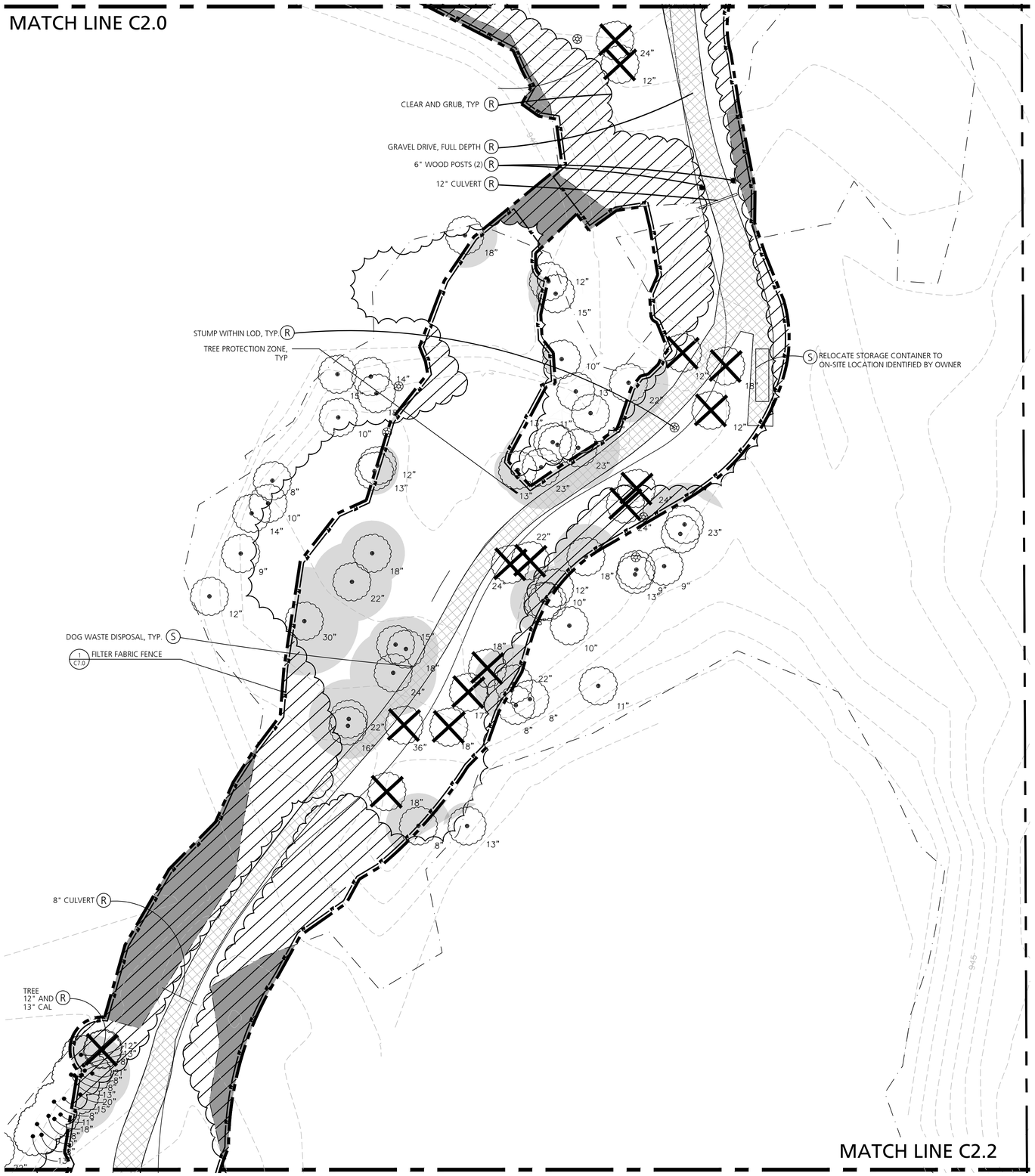
C2.0 SESC & DEMOLITION PLAN - AREA A



CLEARING & GRUBBING NOTES

1. PRIOR TO CONTRACT INITIATION, OWNER WILL PERFORM CUTTING OF TREES AND BRUSH INDICATED FOR REMOVAL ON THE PLANS. PROJECT CONTRACTOR WILL REMAIN RESPONSIBLE FOR STUMP AND ROOT REMOVAL. CONTRACTOR SHALL INSPECT THE SITE PRIOR TO BIDDING TO SONFIRM COMPLETENESS OF OWNER'S WORK. ANY ADDITIONAL REMOVAL REQUIRED BASED ON PROJECT PLANS SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE.

EXCESS EXCAVATION SOILS NOTES

1. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
2. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
3. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
4. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

SESC/DEMO NOTES & LEGENDS

FOR SESC/DEMO NOTES AND LEGENDS SEE SHEET C2.0

Know what's **below.**
Call before you dig.

0 15 30 45 60 90

B R ⓘ
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535 West William, Suite 101
Ann Arbor, MI 48103

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734 **663.6759** fx

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C2.1 SESC & DEMOLITION PLAN - AREA B

SESC/DEMO NOTES & LEGENDS

FOR SESC NOTES AND LEGENDS SEE SHEET C2.0

FOR NCLEARING AND GRUBBING, AND EXCESS EXCAVATION OF SOIL NOTES SEE SHEET C2.1

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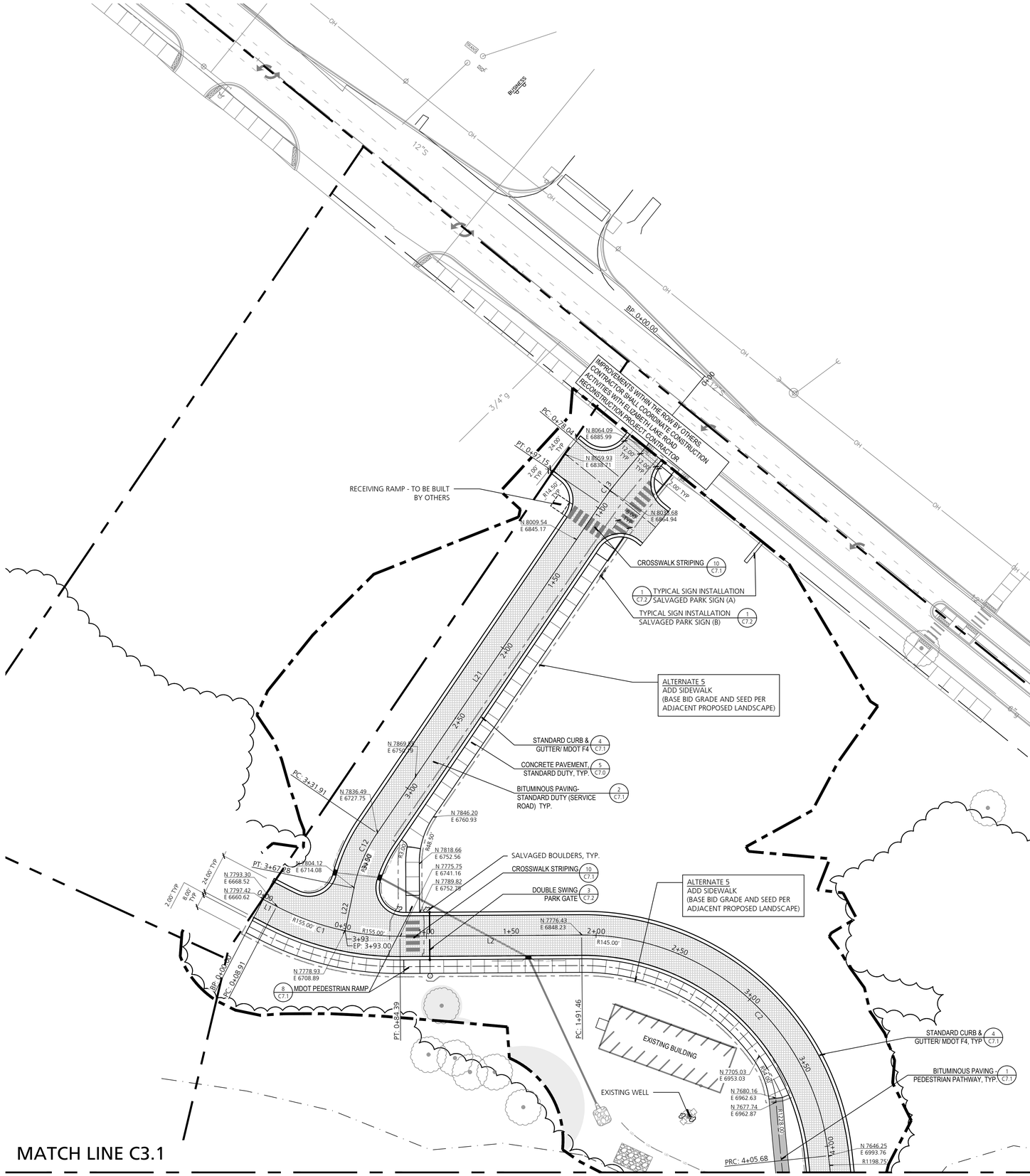
C2.2 SESC & DEMOLITION PLAN - AREA C



LAYOUT & MATERIALS NOTES

1. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH CURRENT ADA STANDARDS.
2. ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF BUILDING OR EDGE OF MATERIAL UNLESS OTHERWISE NOTED.
3. ALL LINES ARE PARALLEL OR PERPENDICULAR TO THE CURB/ PAVEMENT/ BUILDING LINE FROM WHICH THEY ARE DIMENSIONED UNLESS OTHERWISE NOTED.
4. FOLLOWING LAYOUT OF ALL MATERIALS, CONTRACTOR SHALL REVIEW WITH OWNER'S REPRESENTATIVE.
5. ANY DISCREPANCIES IN THE LAYOUT PLAN SHOULD BE IMMEDIATELY REPORTED TO OWNER'S REPRESENTATIVE.
6. NORTHINGS AND EASTINGS ON THE PLAN HAVE BEEN TRUNCATED. NORTHINGS: ADD 410,000 ; EASTINGS: ADD 13,350.000

LAYOUT & MATERIALS LEGEND

- PARCEL LINE
- RIGHT-OF-WAY LINE
- LIMIT OF WORK LINE
- ROAD OR WALKWAY CENTERLINE
- PR CONCRETE CURB & GUTTER
- CONCRETE SIDEWALK WITH INTEGRAL CURB (CONTROL JOINT, EXPANSION JOINT)
- S.D. CONCRETE PAVEMENT (CONTROL JOINT, EXPANSION JOINT)
- H.D. CONCRETE PAVEMENT (CONTROL JOINT, EXPANSION JOINT)
- BITUMINOUS PAVING - PEDESTRIAN PATHWAY
- BITUMINOUS PAVING - STANDARD DUTY (SERVICE ROAD)
- AGGREGATE PAVEMENT
- BOARDWALK

ROAD CURVE TABLES

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	155	75.47	S76° 25' 03.56"E	(13356668.5202,417793.2973)	(13356741.1606,417775.7474)
C2	145	214.22	S48° 11' 11.55"E	(13356848.2293,417776.4334)	(13356993.7631,417646.2496)
C3	1199	130.52	S08° 58' 38.54"E	(13356993.7631,417646.2496)	(13357014.1202,417517.3904)
C4	1199	43.23	S13° 07' 46.71"E	(13357014.1202,417517.3904)	(13357023.9392,417475.2946)
C5	77	99.45	S22° 50' 34.96"W	(13357023.9392,417475.2946)	(13356987.9591,417389.8810)
C6	138	89.71	S41° 13' 16.46"W	(13356944.5478,417364.6601)	(13356886.4671,417298.3646)
C7	212	110.56	S37° 32' 16.73"W	(13356875.6602,417272.4002)	(13356809.0589,417185.7227)
C8	250	118.68	S38° 52' 40.05"W	(13356809.0589,417185.7227)	(13356735.2631,417094.1940)
C9	250	190.82	S03° 24' 42.55"W	(13356735.2631,417094.1940)	(13356724.1809,416908.3072)
C10	200	165.54	S05° 15' 22.66"W	(13356774.4613,416757.6327)	(13356759.7236,416597.4361)
C11	240	251.95	S58° 07' 35.06"W	(13356753.0895,416585.4536)	(13356548.8122,416458.4328)
C12	90	35.37	S22° 53' 56.74"W	(13356727.7548,417836.4942)	(13356714.0811,417804.1227)
C13	200	19.10	S36° 53' 36.82"W	(13356871.0328,418046.0375)	(13356859.5684,418030.7648)

Line #	Length	Direction	Start Point	End Point
L1	8.91	S62° 28' 05.56"E	(13356660.6157,417797.4177)	(13356668.5202,417793.2973)
L2	107.07	N89° 37' 58.43"E	(13356741.1606,417775.7474)	(13356848.2293,417776.4334)
L3	50.21	S59° 50' 40.15"W	(13356987.9591,417389.8810)	(13356944.5478,417364.6601)
L4	28.12	S22° 35' 52.77"W	(13356886.4671,417298.3646)	(13356875.6602,417272.4002)
L5	158.84	S18° 27' 14.33"E	(13356724.1809,416908.3072)	(13356774.4613,416757.6327)
L6	13.70	S28° 58' 15.58"W	(13356759.7236,416597.4361)	(13356753.0895,416585.4536)
L7	110.86	S88° 11' 36.28"W	(13356548.8122,416458.4328)	(13356438.0038,416454.9377)
L20	78.04	S39° 37' 48.10"W	(13356920.8107,418106.1445)	(13356871.0328,418046.0375)
L21	234.77	S34° 09' 25.55"W	(13356859.5684,418030.7648)	(13356727.7548,417836.4942)
L22	25.72	S11° 38' 27.93"W	(13356714.0811,417804.1227)	(13356708.8915,417778.9325)

Know what's **below.**
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0 15 30 45 60 90

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734 **663.6759** fx

Consultants

STATE OF MICHIGAN
BRIAN D. BARRICK
LANDSCAPE ARCHITECT
No. 1313
REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN
CHRISTOPHER G. DEGOOD
ENGINEER
No. 6201049611
LICENSED PROFESSIONAL ENGINEER

Seal

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Stanley Park
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Quality Control

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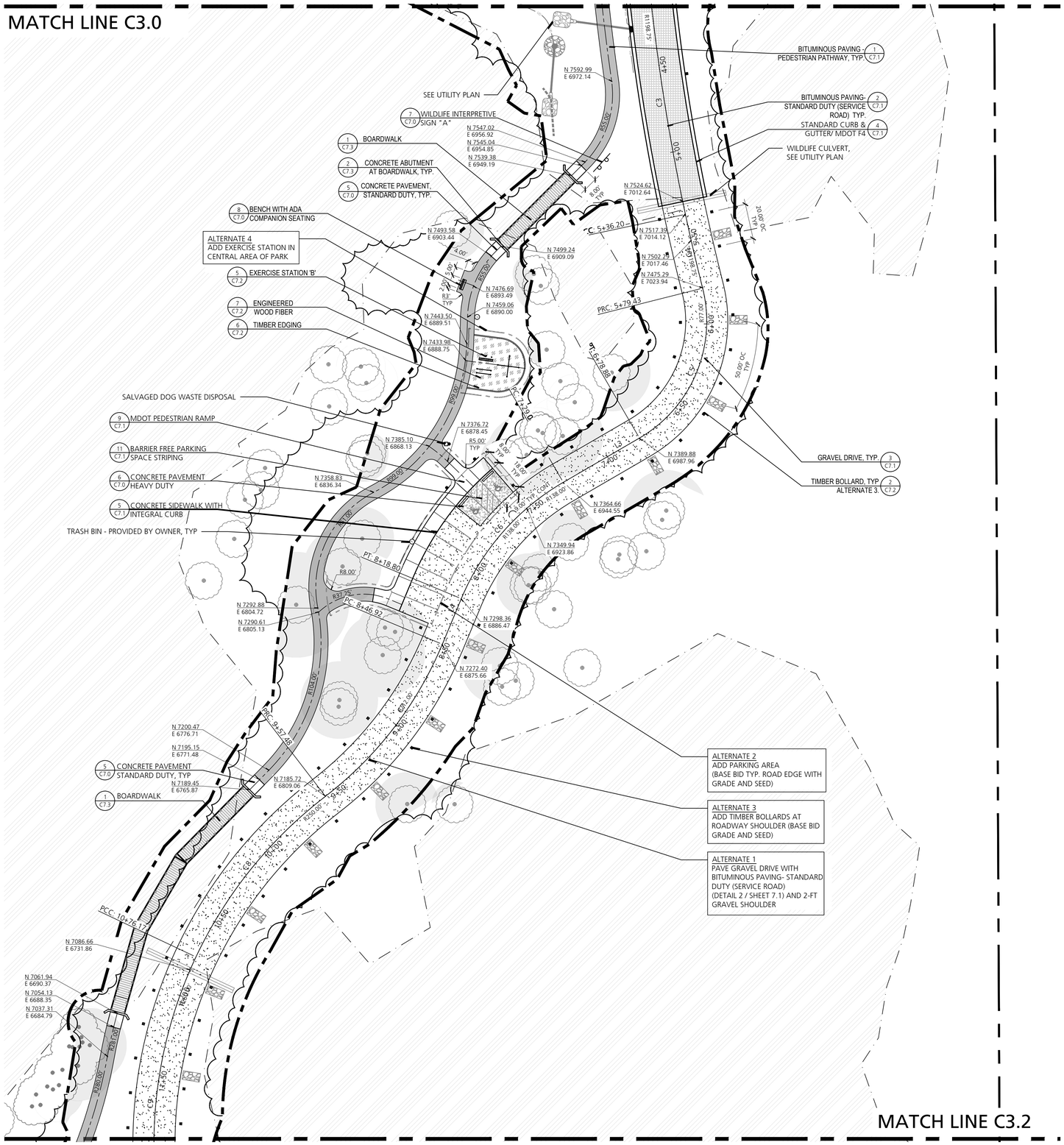
Sheet Number

C3.0 LAYOUT & MATERIALS PLAN - AREA A

LAYOUT & MATERIALS NOTES & LEGENDS

SEE LAYOUT & MATERIALS NOTES AND LEGENDS SEE SHEET C3.0



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Ann Arbor, MI 48103

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Sheet Number

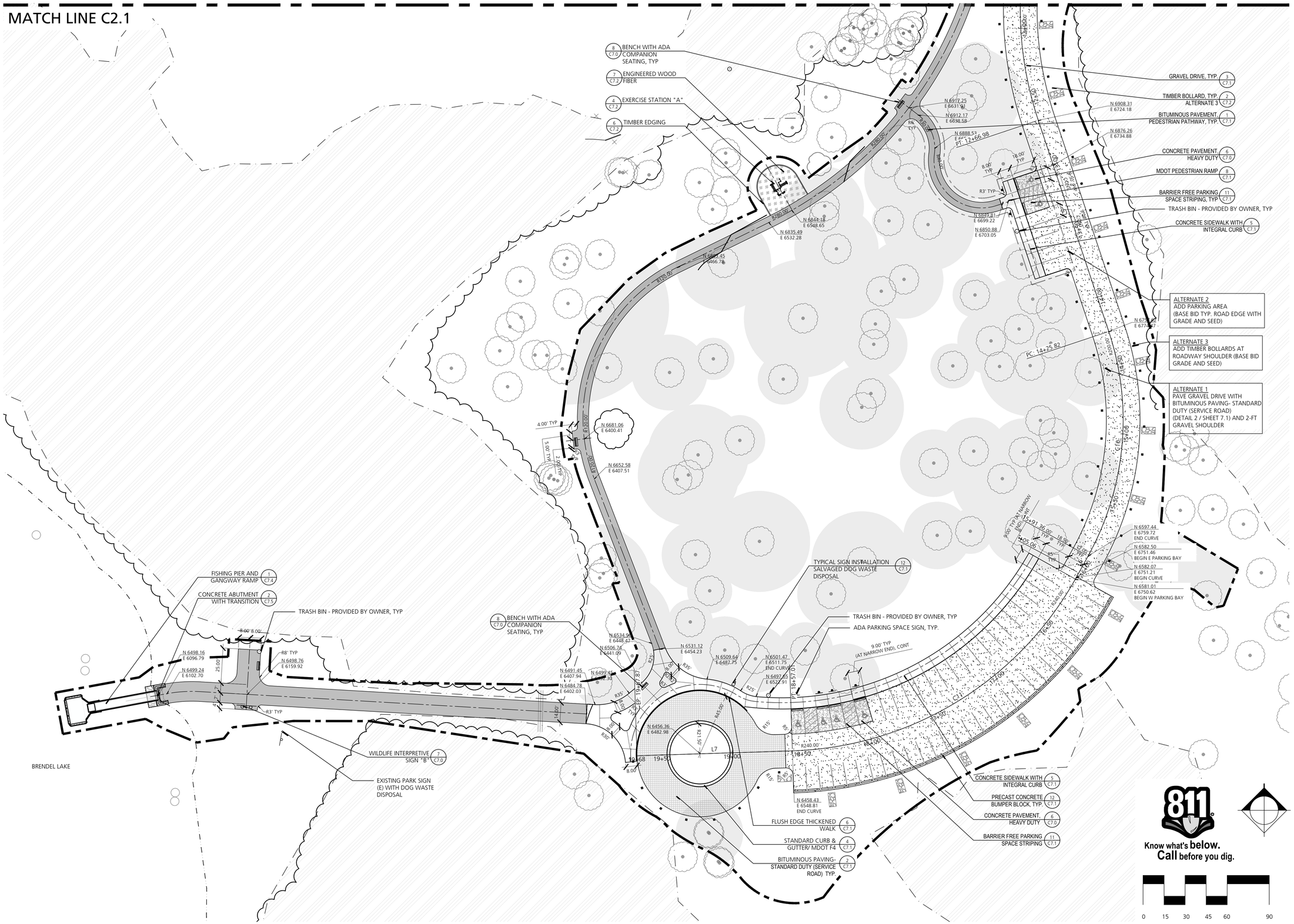
C3.1 LAYOUT & MATERIALS PLAN - AREA B

811 Know what's **below.** **Call** before you dig.

0 15 30 45 60 90

LAYOUT & MATERIALS NOTES & LEGENDS

SEE LAYOUT & MATERIALS NOTES AND LEGENDS SEE SHEET C3.0



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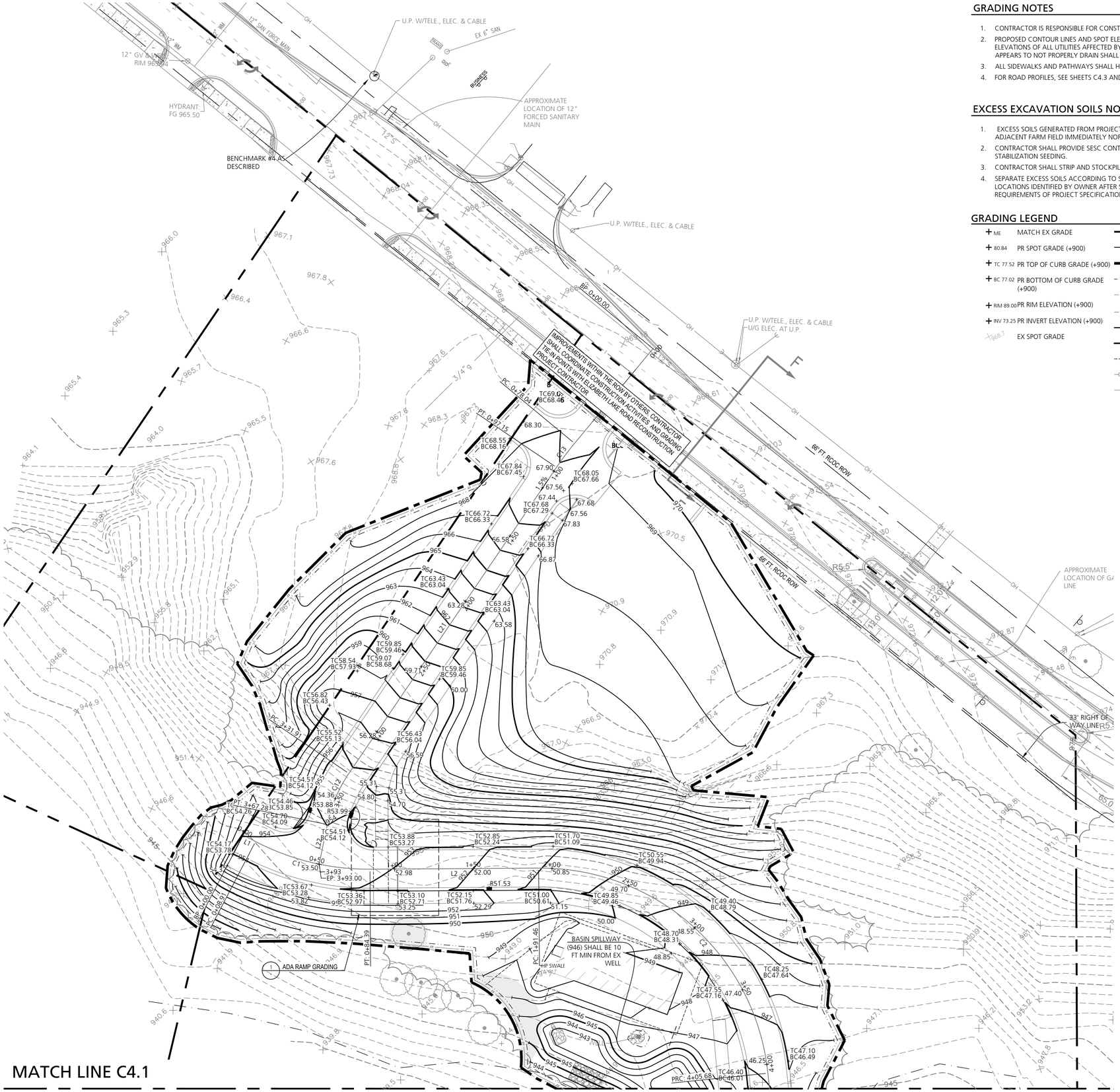
C3.2 LAYOUT & MATERIALS PLAN - AREA C



GRADING NOTES

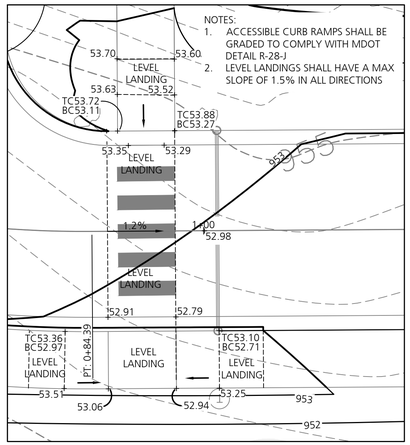
1. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION ALL WORK COMPLETED IN CONFORMANCE WITH CURRENT ADA STANDARDS.
2. PROPOSED CONTOUR LINES AND SPOT ELEVATIONS REFLECT FINISH GRADES. HOLD DOWN SUBGRADE ELEVATIONS ACCORDINGLY. ADJUST RIM ELEVATIONS OF ALL UTILITIES AFFECTED BY WORK IN THIS CONTRACT. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ON THE SITE. ANY AREA THAT APPEARS TO NOT PROPERLY DRAIN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT/ ENGINEER FOR RESOLUTION.
3. ALL SIDEWALKS AND PATHWAYS SHALL HAVE A CROSS SLOPE OF 1.5 MAX, UNLESS OTHERWISE NOTED.
4. FOR ROAD PROFILES, SEE SHEETS C4.3 AND C4.4.

EXCESS EXCAVATION SOILS NOTES

1. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
2. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
3. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
4. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

GRADING LEGEND

+ ME	MATCH EX GRADE		PARCEL LINE
+ 80.84	PR SPOT GRADE (+900)		RIGHT-OF-WAY LINE
+ TC 77.52	PR TOP OF CURB GRADE (+900)		LIMIT OF WORK LINE
+ BC 77.02	PR BOTTOM OF CURB GRADE (+900)		LIMIT OF GRADING
		888	EX MINOR CONTOUR
+ RIM 89.00	PR RIM ELEVATION (+900)	885	EX MAJOR CONTOUR
+ INV 73.25	PR INVERT ELEVATION (+900)	888	PR MINOR CONTOUR
968.7	EX SPOT GRADE	885	PR MAJOR CONTOUR
			SLOPE BREAK
			TREE PROTECTION FENCE
			FILTER FABRIC FENCE



1 ADA RAMP GRADING
1" = 10 FEET

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Beckett & Raeder, Inc.
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Ann Arbor, MI 48103

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STATE OF MICHIGAN BRIAN D. BARRICK LANDSCAPE ARCHITECT No. 1313 REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN CHRISTOPHER G. DEGOOD ENGINEER No. 6201049611 LICENSED PROFESSIONAL ENGINEER

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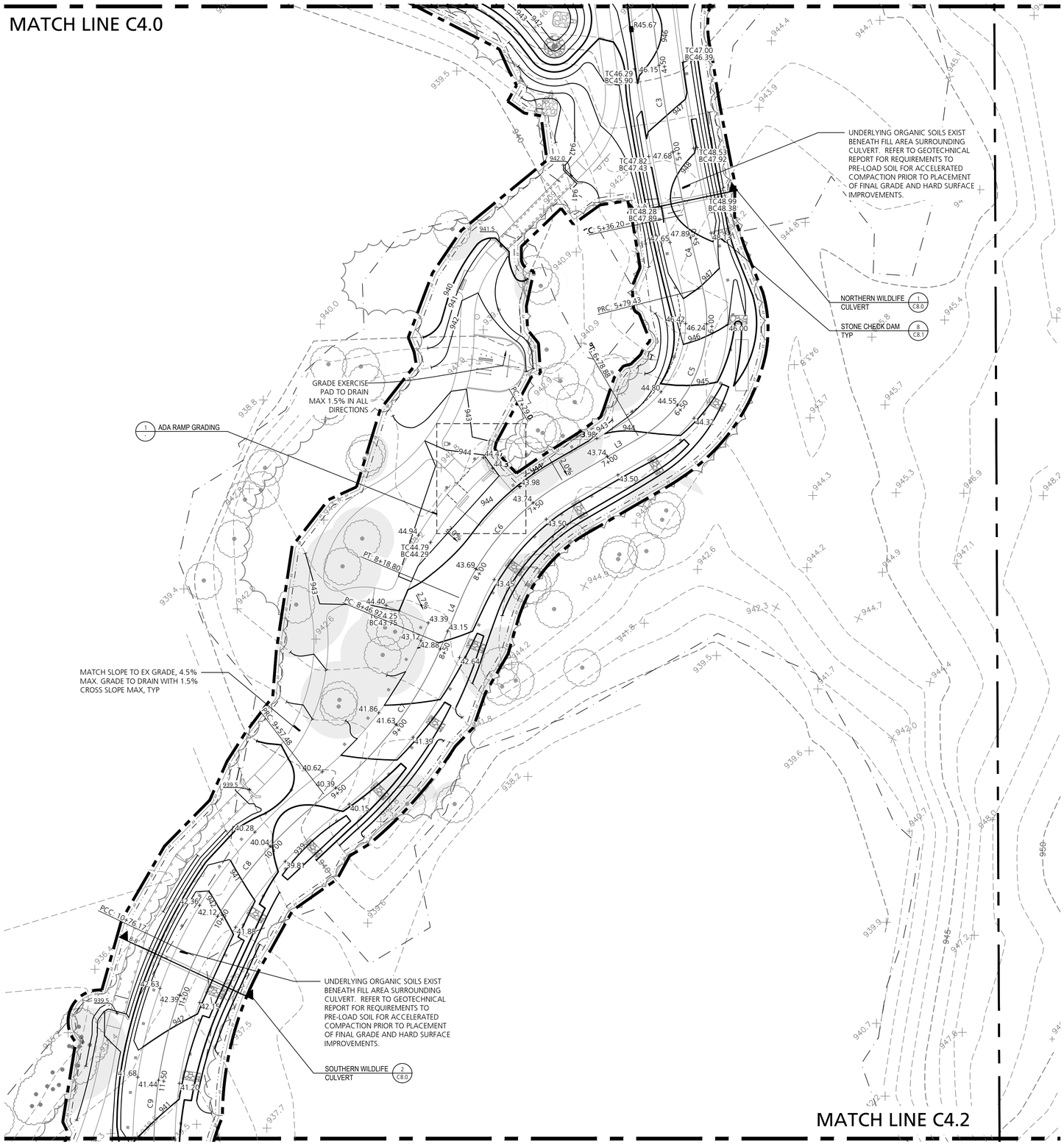
Sheet Number

C4.0 GRADING PLAN - AREA A

811 Know what's below. Call before you dig.

0 15 30 45 60 90

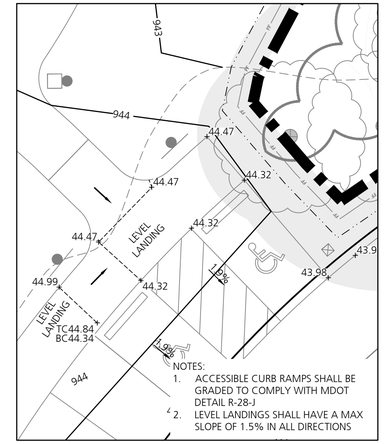
MATCH LINE C4.0



MATCH LINE C4.2

GRADING PLAN NOTES & LEGENDS

SEE GRADING PLAN NOTES AND LEGENDS SEE SHEET C4.0



1 / - ADA RAMP GRADING

1" = 10FEET

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0 15 30 45 60 90

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Sheet Number

C4.1 GRADING PLAN - AREA B

GRADING PLAN NOTES & LEGENDS

SEE GRADING PLAN NOTES AND LEGENDS SEE SHEET ON C4.0

1 ADA RAMP GRADING
1"= 10FEET

2 ADA RAMP GRADING
1"= 10FEET

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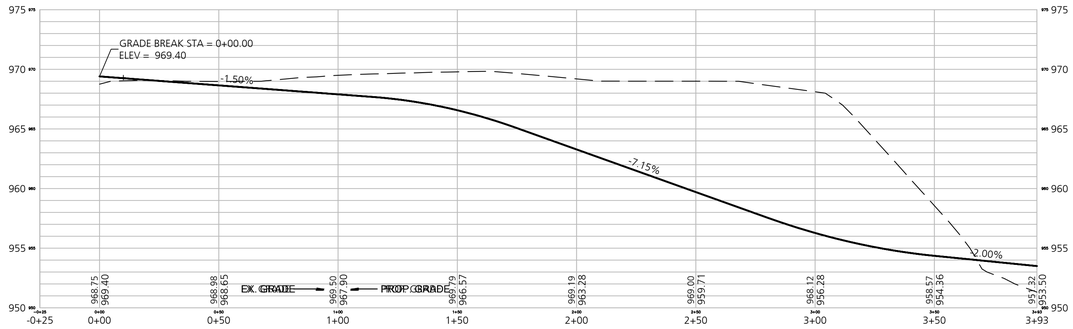
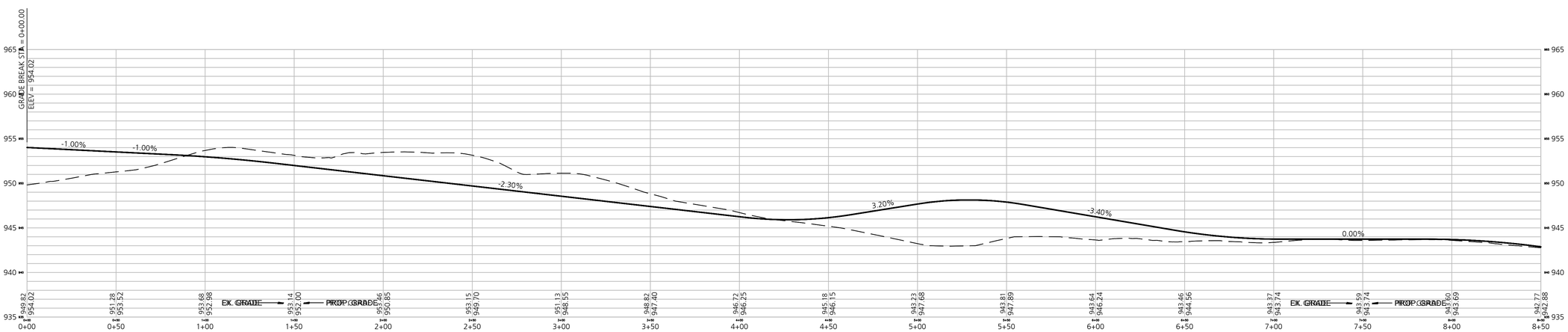
Sheet Number

C4.2 GRADING PLAN - AREA C



1 Entrance Road STA -0+25 to 3+93

HORIZONTAL SCALE: 1" = 30'



2 Main Drive STA 0+00 to 8+50

HORIZONTAL SCALE: 1" = 30'

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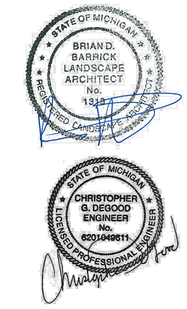

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Project Number

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Sheet Number

C4.3 ROAD PROFILE (1)

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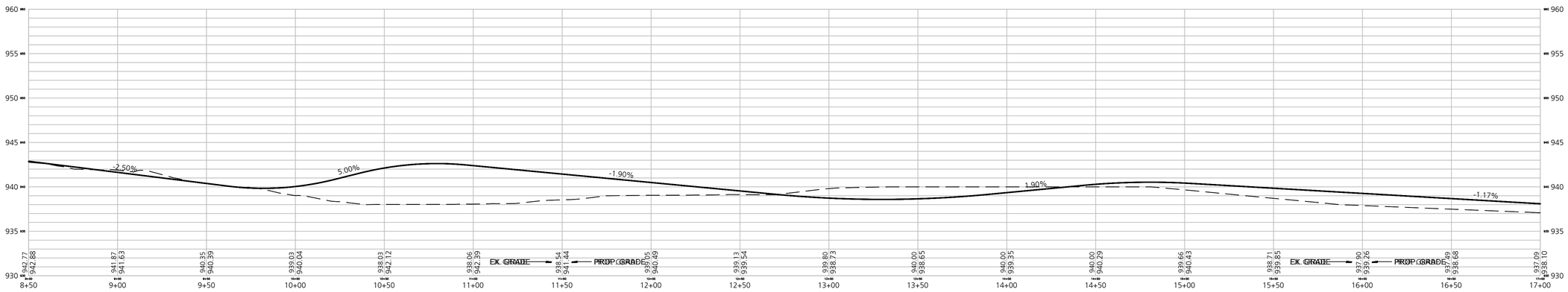
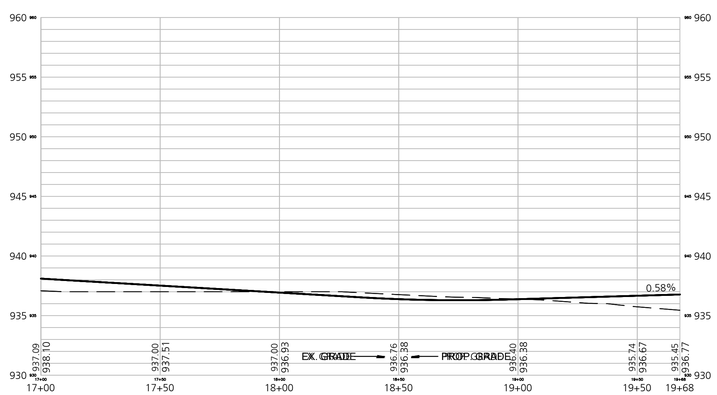
0 15 30 45 60 90



1 Main Drive STA 8+50 to 17+00

HORIZONTAL SCALE: 1" = 30'



2 Main Drive STA 17+00 TO 19+68

HORIZONTAL SCALE: 1" = 30'

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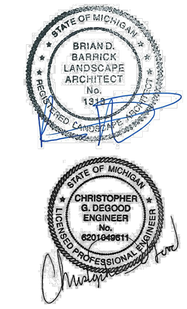

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C4.4 ROAD PROFILE (2)

Know what's **below.**
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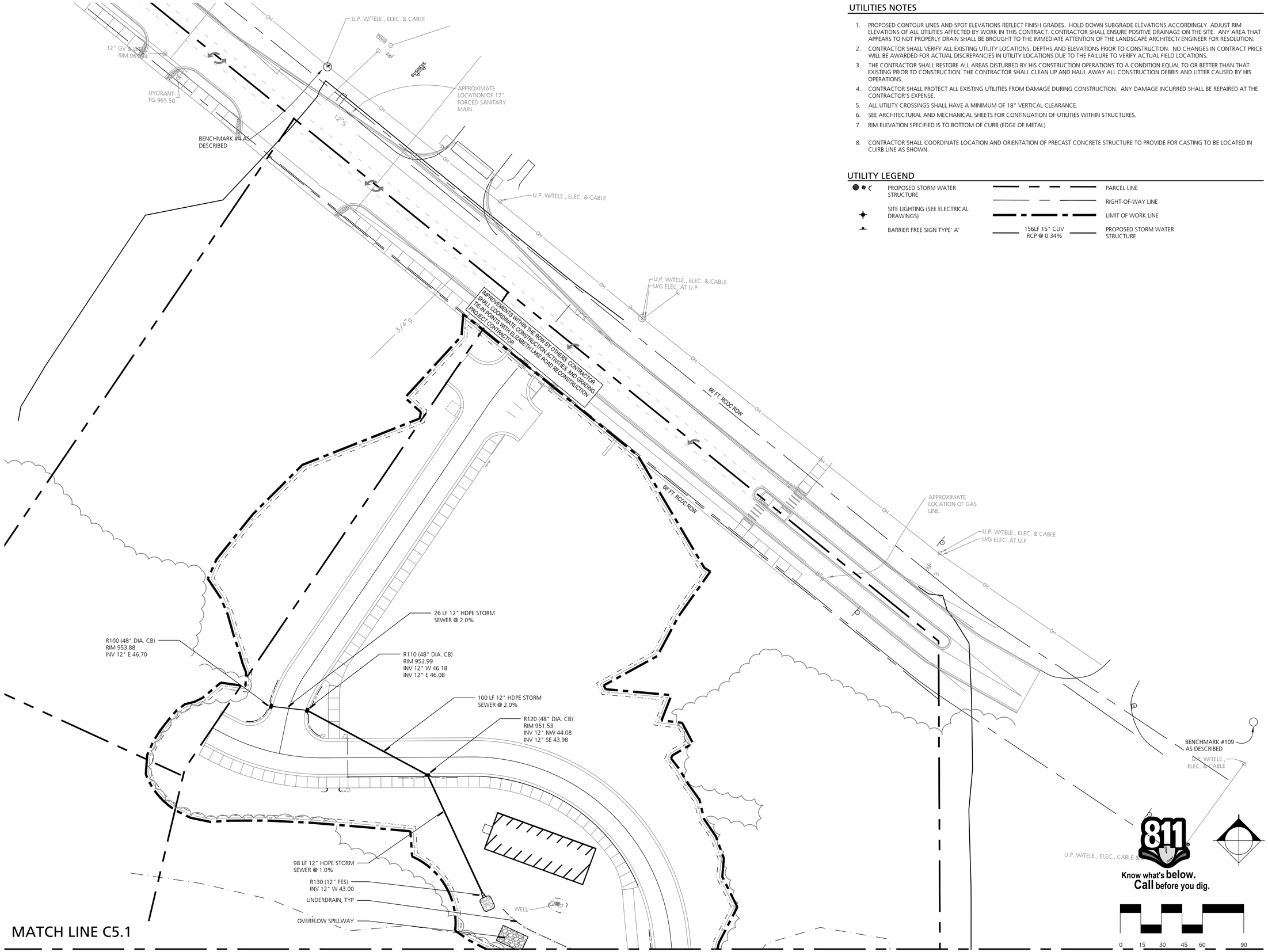
0 15 30 45 60 90



UTILITIES NOTES

1. PROPOSED CONTOUR LINES AND SPOT ELEVATIONS REFLECT FINISH GRADES. HOLD DOWN SUBGRADE ELEVATIONS ACCORDINGLY. ADJUST RIM ELEVATIONS OF ALL UTILITIES AFFECTED BY WORK IN THIS CONTRACT. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ON THE SITE. ANY AREA THAT APPEARS TO NOT PROPERLY DRAIN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT/ ENGINEER FOR RESOLUTION.
2. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS, DEPTHS AND ELEVATIONS PRIOR TO CONSTRUCTION. NO CHANGES IN CONTRACT PRICE WILL BE AWARDED FOR ACTUAL DISCREPANCIES IN UTILITY LOCATIONS DUE TO THE FAILURE TO VERIFY ACTUAL FIELD LOCATIONS.
3. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY HIS CONSTRUCTION OPERATIONS TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CLEAN UP AND HAUL AWAY ALL CONSTRUCTION DEBRIS AND LITTER CAUSED BY HIS OPERATIONS.
4. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE INCURRED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. ALL UTILITY CROSSINGS SHALL HAVE A MINIMUM OF 18" VERTICAL CLEARANCE.
6. SEE ARCHITECTURAL AND MECHANICAL SHEETS FOR CONTINUATION OF UTILITIES WITHIN STRUCTURES.
7. RIM ELEVATION SPECIFIED IS TO BOTTOM OF CURB (EDGE OF METAL).
8. CONTRACTOR SHALL COORDINATE LOCATION AND ORIENTATION OF PRECAST CONCRETE STRUCTURE TO PROVIDE FOR CASTING TO BE LOCATED IN CUIRB LINE AS SHOWN.

UTILITY LEGEND

	PROPOSED STORM WATER STRUCTURE		PARCEL LINE
			RIGHT-OF-WAY LINE
	SITE LIGHTING (SEE ELECTRICAL DRAWINGS)		LIMIT OF WORK LINE
	BARRIER FREE SIGN TYPE' A'	156LF 15" CLIV RCP @ 0.34%	PROPOSED STORM WATER STRUCTURE

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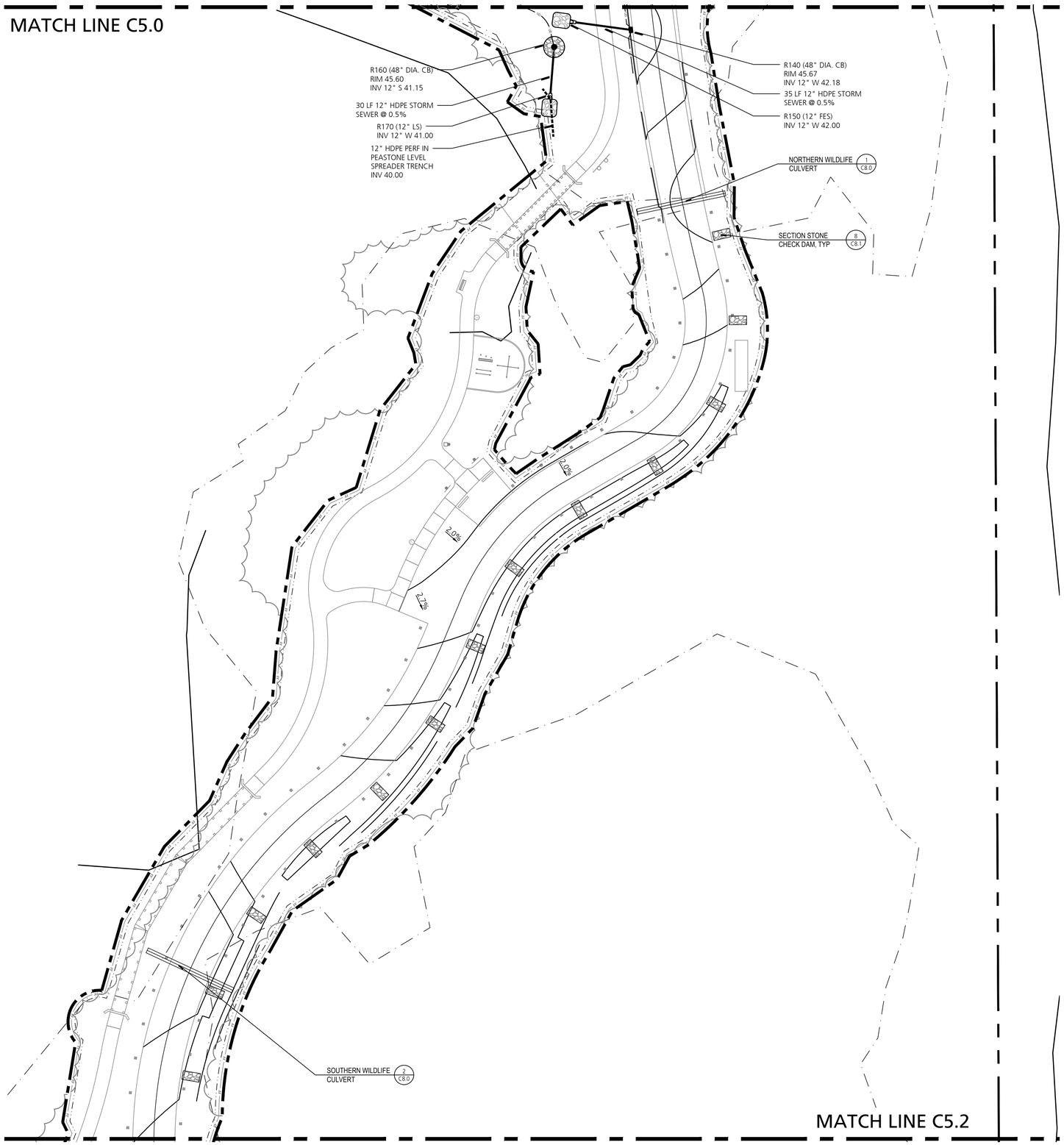
C5.0 UTILITY PLAN - AREA A



UTILITY PLAN NOTES & LEGENDS

SEE UTILITY PLAN NOTES AND LEGENDS SEE SHEET C4.0

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535 West William, Suite 101
Ann Arbor, MI 48103

734 663.2622 ph
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STATE OF MICHIGAN
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ENGINEER
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LICENSED PROFESSIONAL ENGINEER

Seal

Project Title

White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

Sheet Title

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Scale

Quality Control

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Checked: LDS, BB
Approved: BB

Project Number

2022024

Sheet Number

C5.1 UTLITY PLAN - AREA B

811 Know what's **below.** **Call** before you dig.

0 15 30 45 60 90

UTILITY PLAN NOTES & LEGENDS

SEE UTILITY PLAN NOTES AND LEGENDS SEE SHEET C5.0

Know what's **below.**
Call before you dig.

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Consultants

STATE OF MICHIGAN
BRIAN D. BARRICK
LANDSCAPE ARCHITECT
No. 1313
REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN
CHRISTOPHER G. DEGOOD
ENGINEER
No. 6201049611
LICENSED PROFESSIONAL ENGINEER

Seal

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C5.2 UTILITY PLAN - AREA C

STORMWATER MANAGEMENT LEGEND

- IMPERVIOUS PAVEMENT & BUILDINGS
- PERVIOUS OPEN SPACES
- OVERLAND FLOW LINE
- STORMWATER PIPE FLOW LINE
- LIMIT OF DISTURBANCE

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Ann Arbor, MI 48103

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734 663.6759 fx

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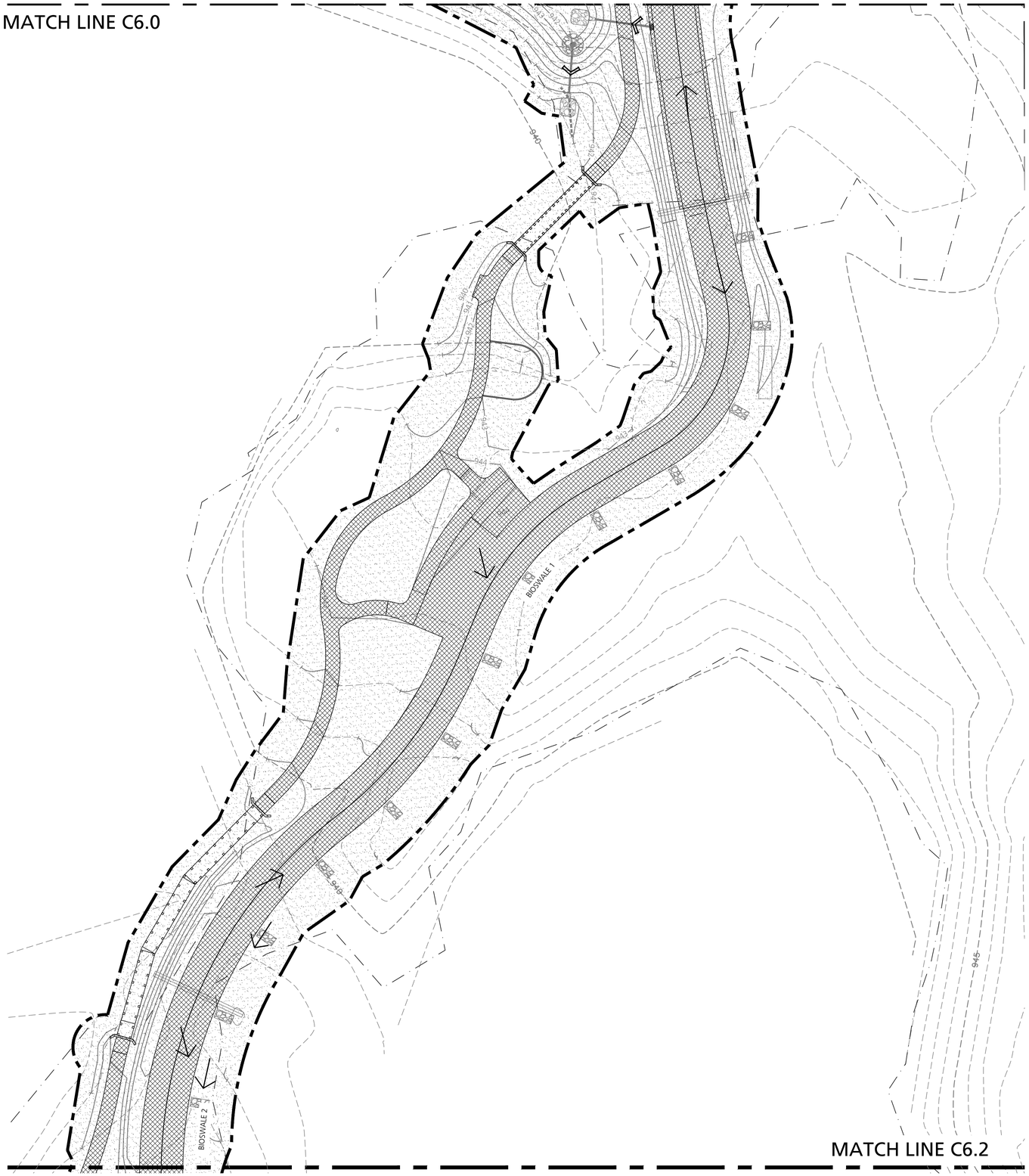
C6.0 STORMWATER MANAGEMENT PLAN - AREA A

811 Know what's **below.** **Call** before you dig.

0 15 30 45 60 90

MATCH LINE C6.0



MATCH LINE C6.2

STORMWATER SUMMARY:

Area	9.68	ac
Prop. Impervious	2.10	ac
Prop. Pervious	7.58	ac
Infiltration Rate		in/hr
Runoff Coefficient, C	0.36	
100-yr peak intensity	13.84	in/hr

THE PROPOSED DESIGN INTENDS TO ELIMINATE CONCENTRATION OF TOTAL SUSPENDED SOLIDS BY MANAGING THE WATER QUALITY VOLUME. THE WATER QUALITY VOLUME WAS CALCULATED USING OAKLAND COUNTY WATER RESOURCES COMMISSIONER 2021 STORMWATER ENGINEERING DESIGN STANDARDS.

EQU (1) V_{WQ}= 3630*A*C

Stormwater Management BMP	Required Water Quality Volume (cft)	Provided Water Quality Volume (cft)
Pond 1	2,711	3,950
Pond 2	2,294	4,075

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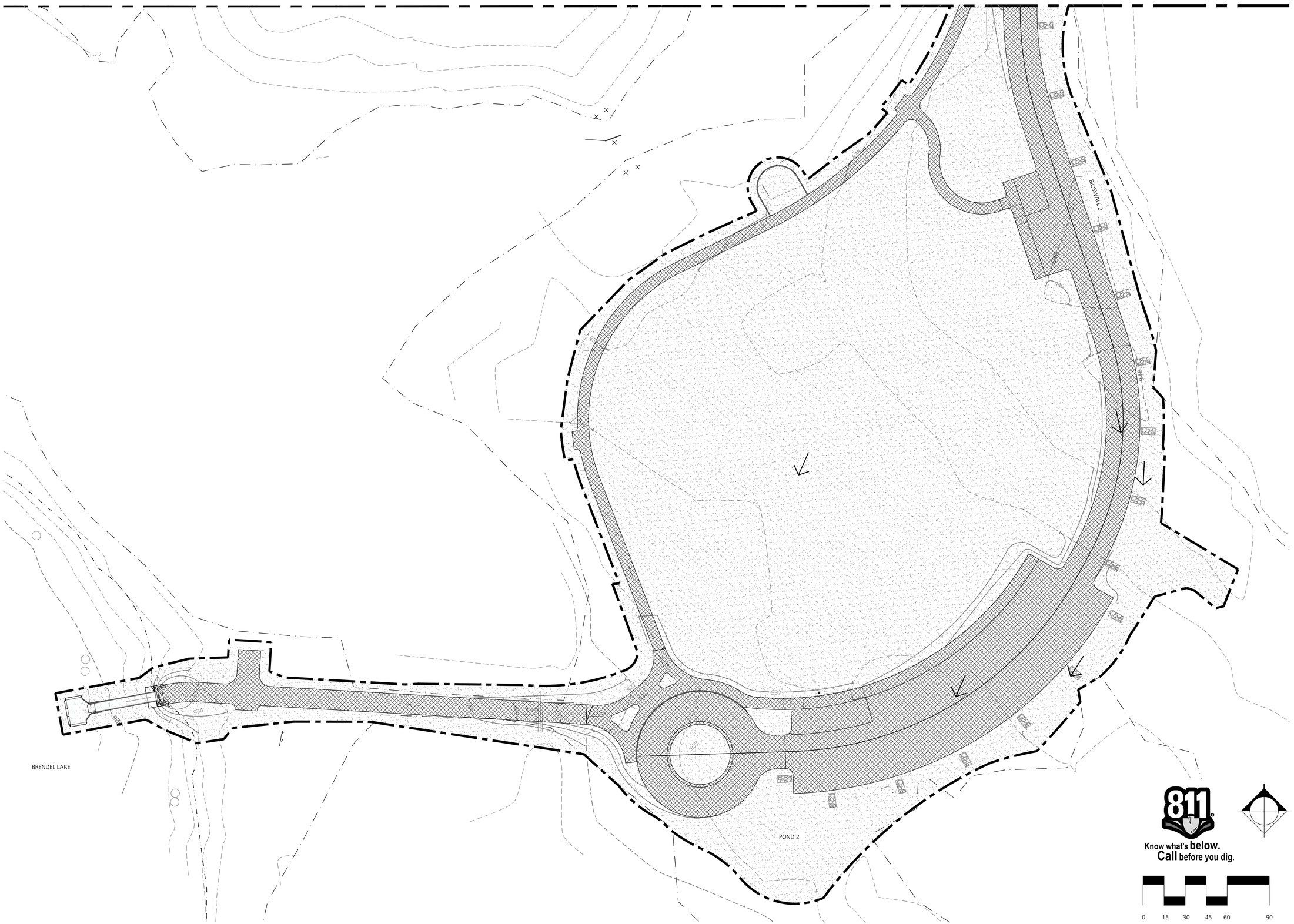
C6.1 **STORMWATER MANAGEMENT PLAN - AREA B**

MATCH LINE C6.1



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0 15 30 45 60 90

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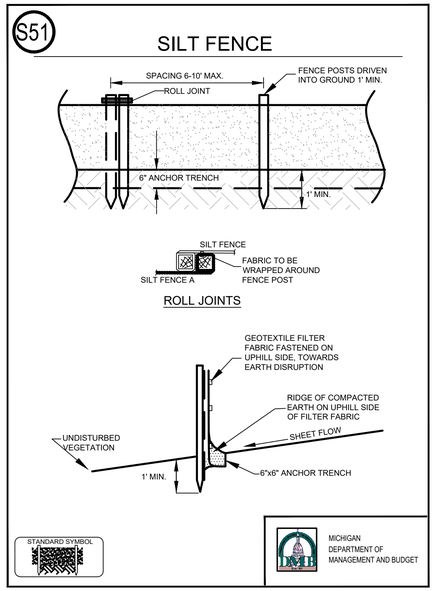
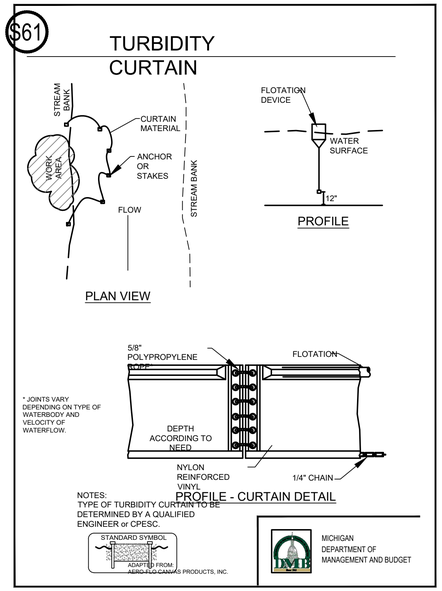
C6.2 **STORMWATER MANAGEMENT PLAN - AREA C**



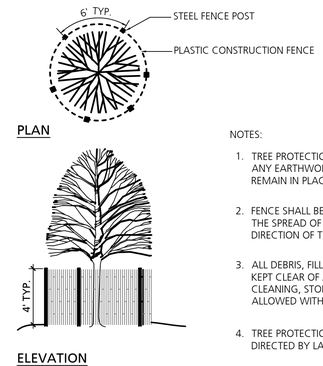
1 - Filter Fabric/Wildlife Protection Fence: MDTMB SESC Detail

NO SCALE



2 Turbidity Curtain: MDTMB SESC Detail

NO SCALE

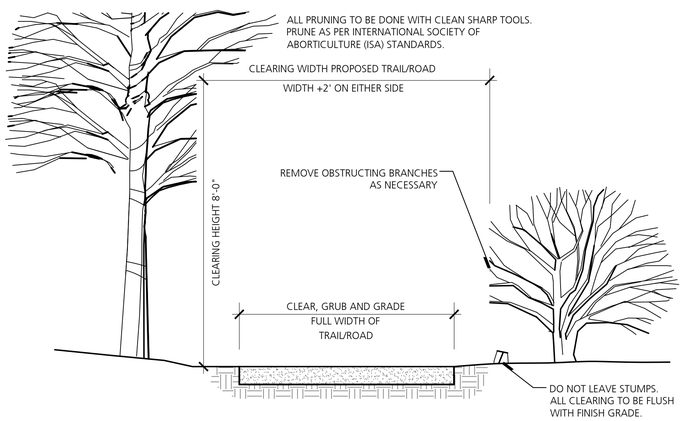


NOTES:

1. TREE PROTECTION FENCING SHALL BE ERECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
2. FENCE SHALL BE LOCATED AT THE OUTER PERIMETER OF THE SPREAD OF THE BRANCHES OR CLOSER ONLY AT THE DIRECTION OF THE PROJECT LANDSCAPE ARCHITECT.
3. ALL DEBRIS, FILL, EQUIPMENT AND MATERIAL SHALL BE KEPT CLEAR OF AREA WITHIN PROTECTIVE FENCE. NO CLEANING, STORAGE, OR DISPOSAL OF ANY MATERIAL ALLOWED WITHIN THE DRIP LINE OF TREES TO BE SAVED.
4. TREE PROTECTION FENCING SHALL BE INSTALLED WHERE DIRECTED BY LANDSCAPE ARCHITECT.

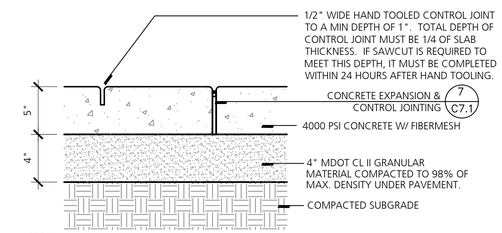
3 Tree Protection Fence

NO SCALE



4 - Clearing and Grubbing Extents at Trail/Road

NO SCALE

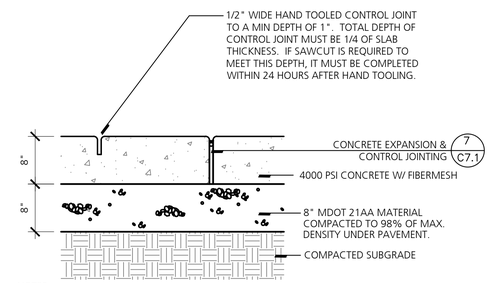


NOTES:

1. EXPANSION JOINTS SHALL BE INSTALLED SUCH THAT NO SINGLE DIMENSION EXCEEDS 50 FT. EXPANSION JOINTS TO BE LOCATED PER PLAN.
2. 1/2 " EXPANSION PAPER SHALL BE PLACED AT ALL LOCATIONS THAT NEW SIDEWALK ABUTS CONCRETE CURB, EXISTING SIDEWALK, LIGHT POLE BASES, BUILDINGS/STRUCTURES, AND RETAINING WALLS.
3. SNAP-CAP EXPANSION JOINT STRIPS CAN BE USED ON ALL EXPANSION JOINTS
4. ALL EXPANSION JOINTS SHALL BE SEALED.
5. BROOM FINISH PARALLEL TO JOINTS AND PERPENDICULAR TO TRAFFIC (IF BROOMING PATTERN NOT SHOWN).

5 Concrete Pavement - Standard Duty (S.D.)

NO SCALE



NOTES:

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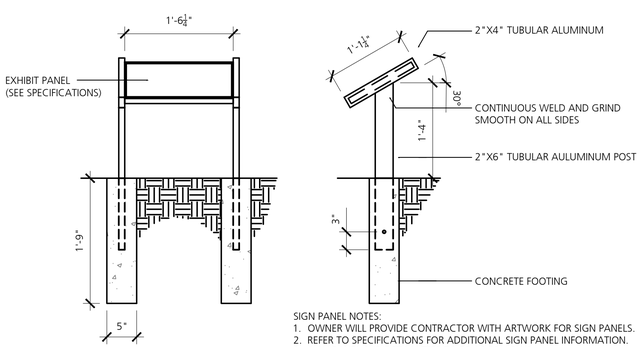
2. 1/2 " EXPANSION PAPER SHALL BE PLACED AT ALL LOCATIONS THAT NEW SIDEWALK ABUTS CONCRETE CURB, EXISTING SIDEWALK, LIGHT POLE BASES, BUILDINGS/STRUCTURES, AND RETAINING WALLS.
3. SNAP-CAP EXPANSION JOINT STRIPS CAN BE USED ON ALL EXPANSION JOINTS
4. ALL EXPANSION JOINTS SHALL BE SEALED.
5. BROOM FINISH PARALLEL TO JOINTS AND PERPENDICULAR TO TRAFFIC (IF BROOMING PATTERN NOT SHOWN).

6 Concrete Pavement - Heavy Duty (H.D.)

NO SCALE



SIGN PANEL NOTES:

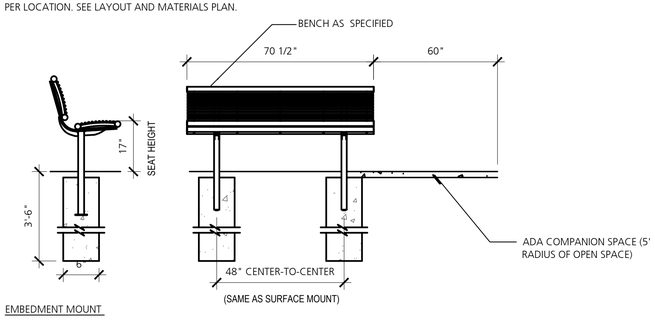
1. OWNER WILL PROVIDE CONTRACTOR WITH ARTWORK FOR SIGN PANELS.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL SIGN PANEL INFORMATION.
3. SIGN PANEL SUBJECT MATTER TO BE AS FOLLOWS::
   - SIGN 'A': EASTERN MASSASAUGA RATTLESNAKE
   - SIGN 'B': HURON RIVER HEADWATERS

7 Wildlife Interpretive Sign

SCALE: SEE DETAILS

NOTES:

1. OWNER TO PROVIDE BENCH. CONTRACTOR SHALL INSTALL.
2. CONCRETE PAD SIZE AND BENCH LOCATION VARIES PER LOCATION. SEE LAYOUT AND MATERIALS PLAN.



8 Bench with ADA Companion Seating

SCALE: SEE DETAILS

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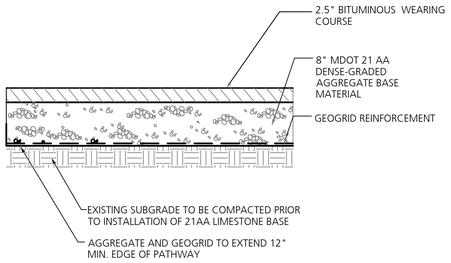
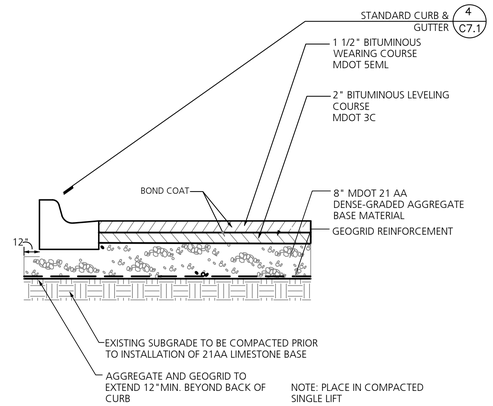
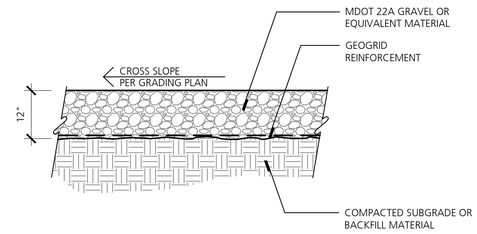
C7.0 SITE DETAILS (1)



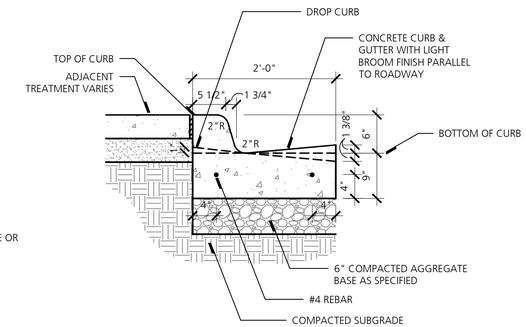
1 Bituminous Paving - Pedestrian Pathway
NO SCALE



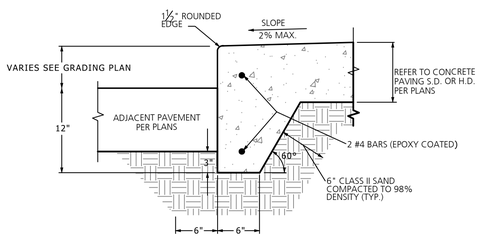
2 Bituminous Paving - Standard Duty (Service Road)
NO SCALE



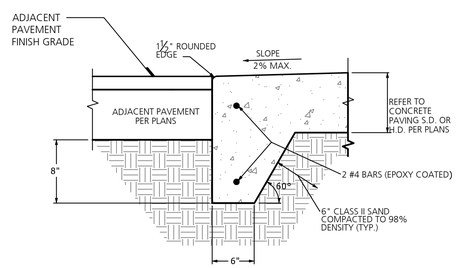
3 Gravel Drive
NO SCALE



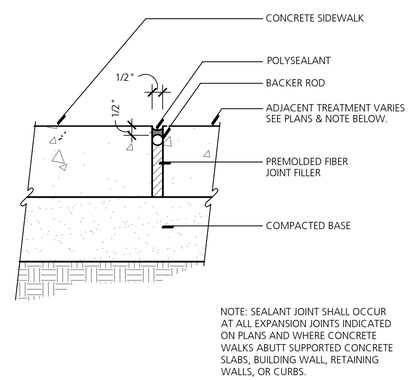
4 Standard Curb & Gutter / MDOT F4
SCALE: 1" = 1'-0"



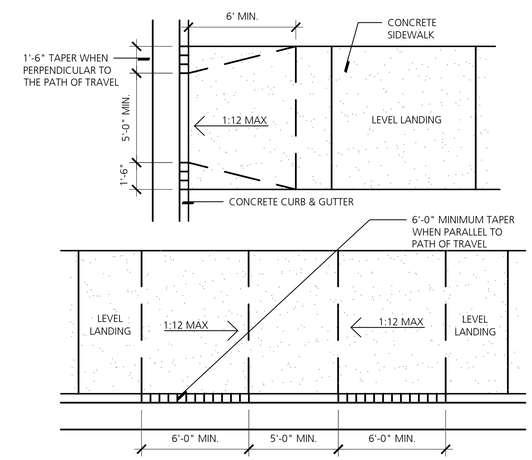
5 Concrete Sidewalk with Integral Curb
NO SCALE



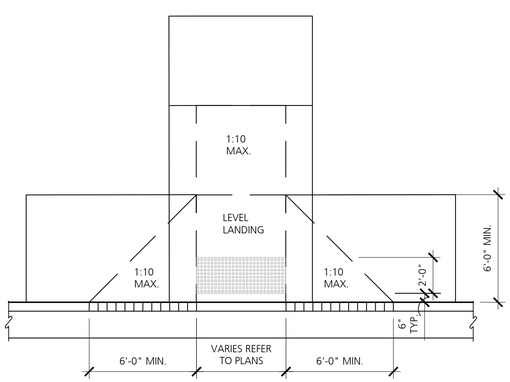
6 Flush Edge Thickened Walk
NO SCALE



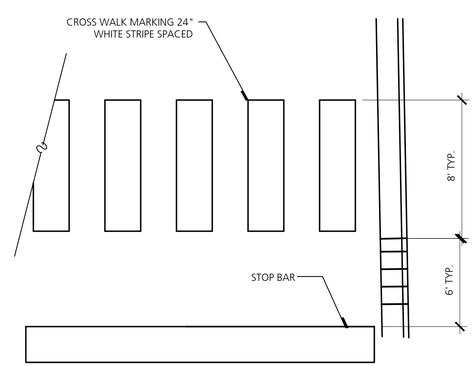
7 Concrete Expansion & Control Jointing
NO SCALE



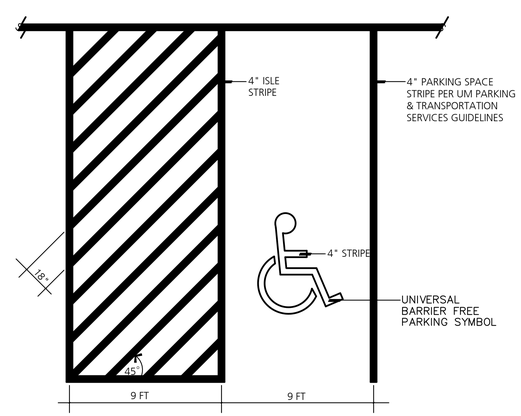
8 MDOT Pedestrian Ramp
NO SCALE



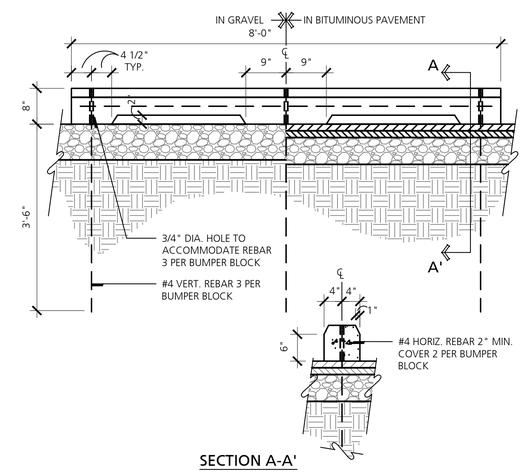
9 MDOT Pedestrian Ramp
NO SCALE



10 Crosswalk Striping
NO SCALE



11 Barrier Free Parking Space Striping
SCALE 1/4" = 1' - 0"



12 Precast Concrete Bumper Block
SCALE 1/4" = 1' - 0"

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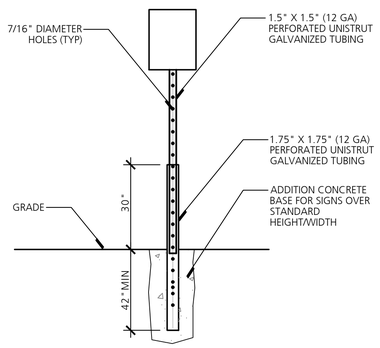
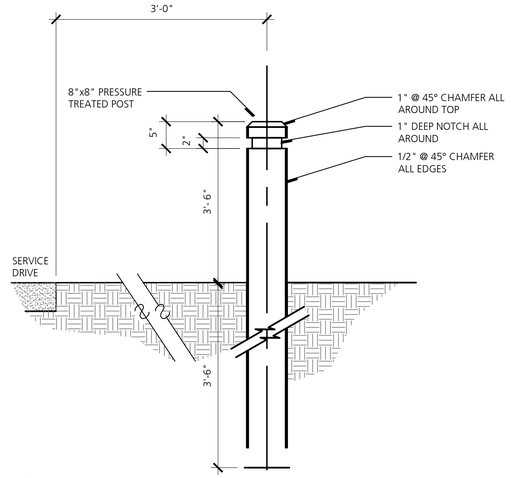
C7.1 SITE DETAILS (2)

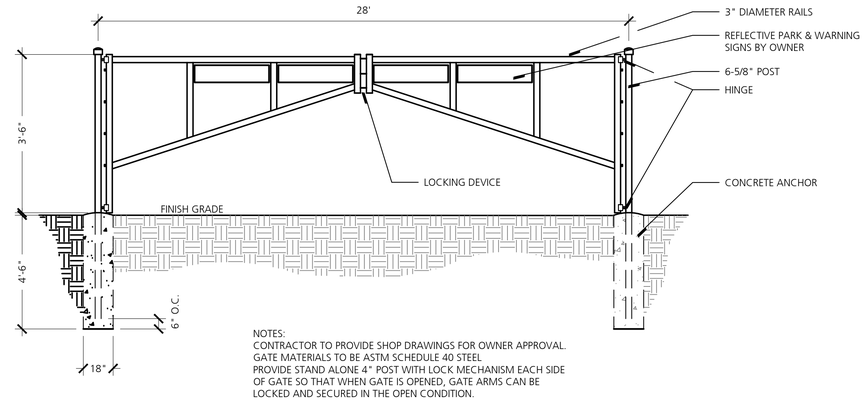
NOTE: SIGN SPECIFICATIONS AND HEIGHT TO MEET MMUTCD.



1 Typical Signage Installation
NO SCALE

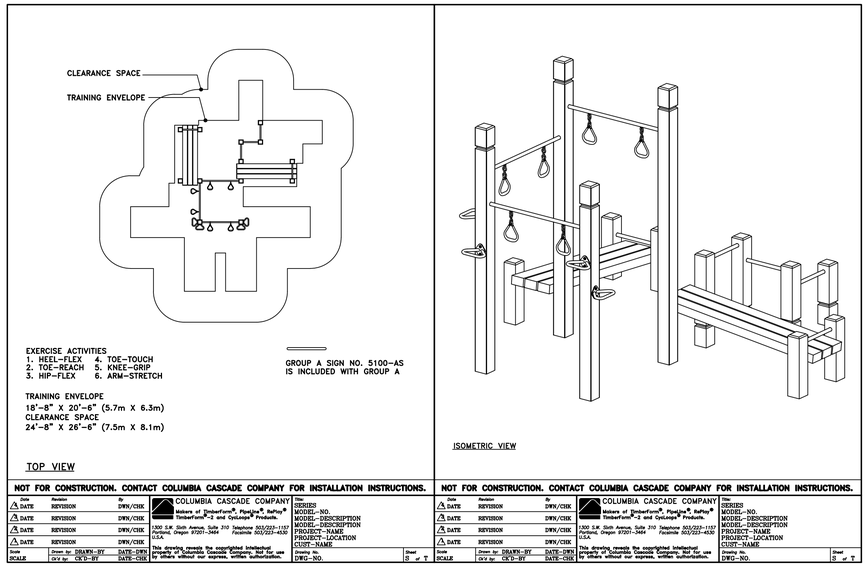


2 Timber Bollard
NO SCALE

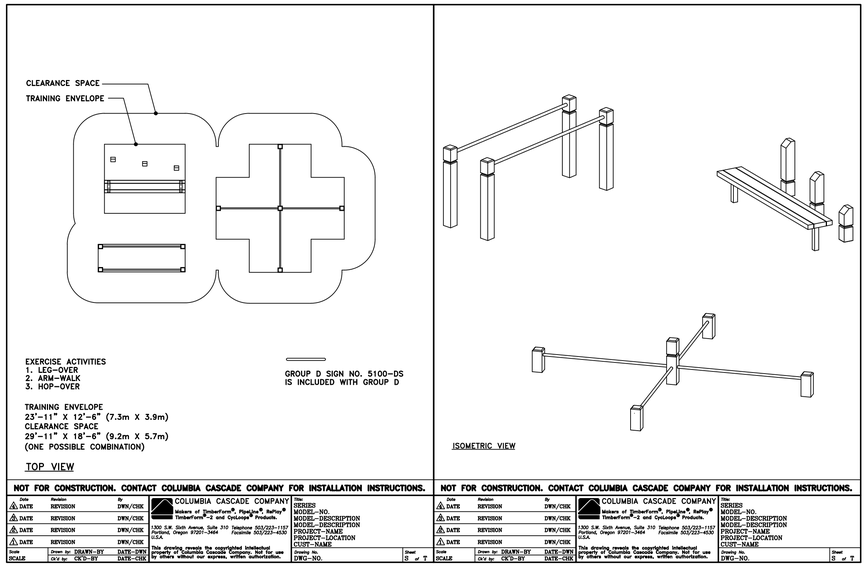


NOTES:
CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR OWNER APPROVAL.
GATE MATERIALS TO BE ASTM SCHEDULE 40 STEEL
PROVIDE STAND ALONE 4" POST WITH LOCK MECHANISM EACH SIDE OF GATE SO THAT WHEN GATE IS OPENED, GATE ARMS CAN BE LOCKED AND SECURED IN THE OPEN CONDITION.

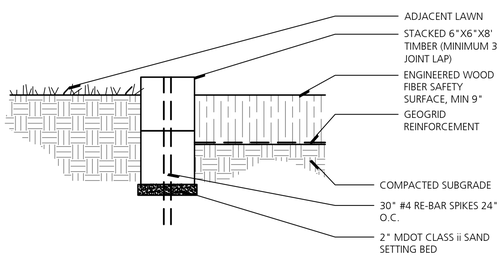
3 Double Swing Park Gate
NO SCALE



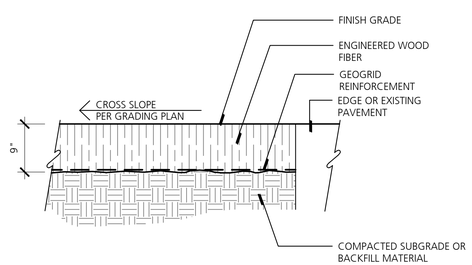
4 Exercise Station 'A'
NOT TO SCALE



5 Exercise Station 'B'
NOT TO SCALE



6 Timber Edging
NO SCALE



7 Engineered Wood Fiber
NO SCALE

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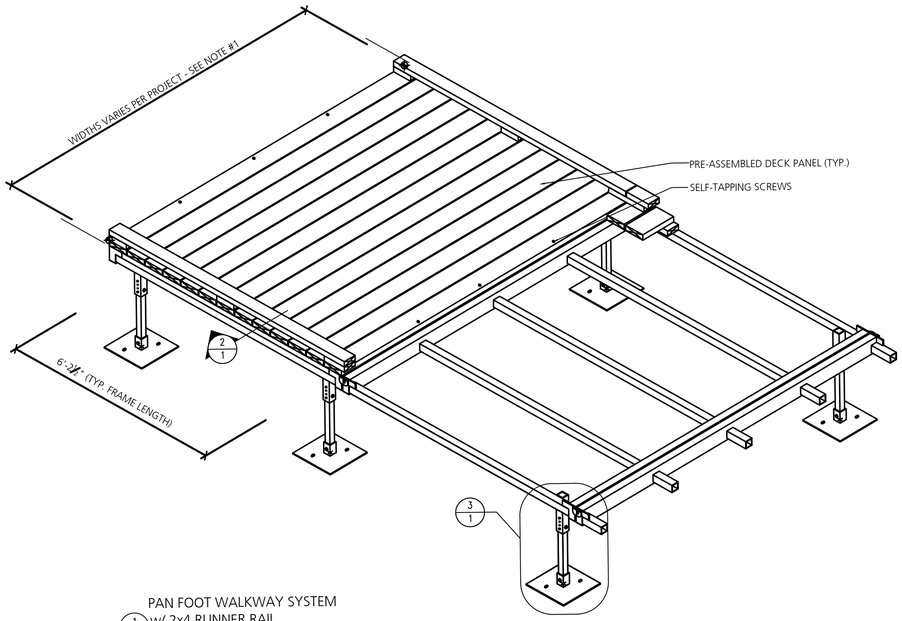
Sheet Number

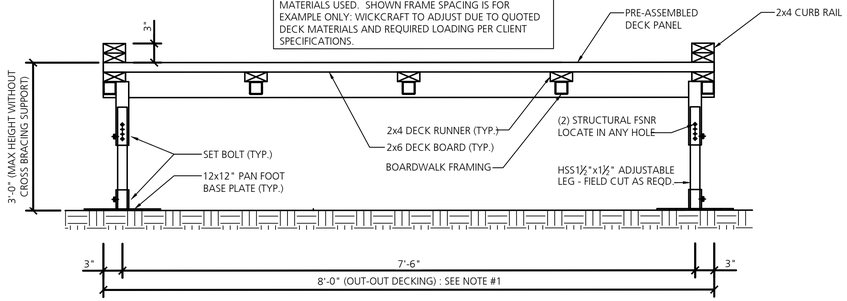
C7.2 SITE DETAILS (3)



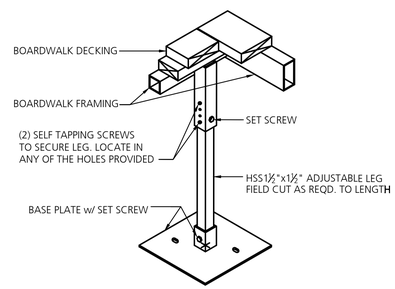
1/1 PAN FOOT WALKWAY SYSTEM w/ 2x4 RUNNER RAIL
SCALE: N.T.S.

NOTE #1: SHOWN WIDTH IS FOR EXAMPLE ONLY: REFER TO QUOTE FOR ACTUAL WIDTHS. PAN FOOT BOARDWALK SYSTEMS ARE AVAILABLE IN 4'-0", 6'-0", 8'-0" & 10'-0" STANDARD WIDTHS. CUSTOM WIDTHS AVAILABLE UPON REQUEST.

NOTE #2: REFER TO QUOTE FOR DECK AND RAILING MATERIALS USED. SHOWN FRAME SPACING IS FOR EXAMPLE ONLY: WICKCRAFT TO ADJUST DUE TO QUOTED DECK MATERIALS AND REQUIRED LOADING PER CLIENT SPECIFICATIONS.

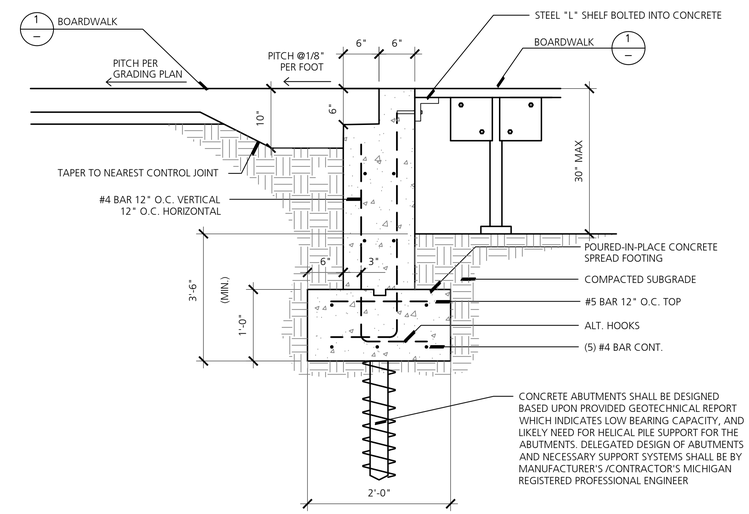


2/1 WALKWAY SECTION w/ 2x4 RUNNER RAIL
SCALE: N.T.S.



3/1 ADJUSTABLE LEG DETAIL
SCALE: N.T.S.

1 Boardwalk
NOT TO SCALE



2 Concrete Abutment at Boardwalk
NO SCALE

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Project Title

White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

Sheet Title

Dates

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01.04.2024	BIDDING

Scale

Quality Control

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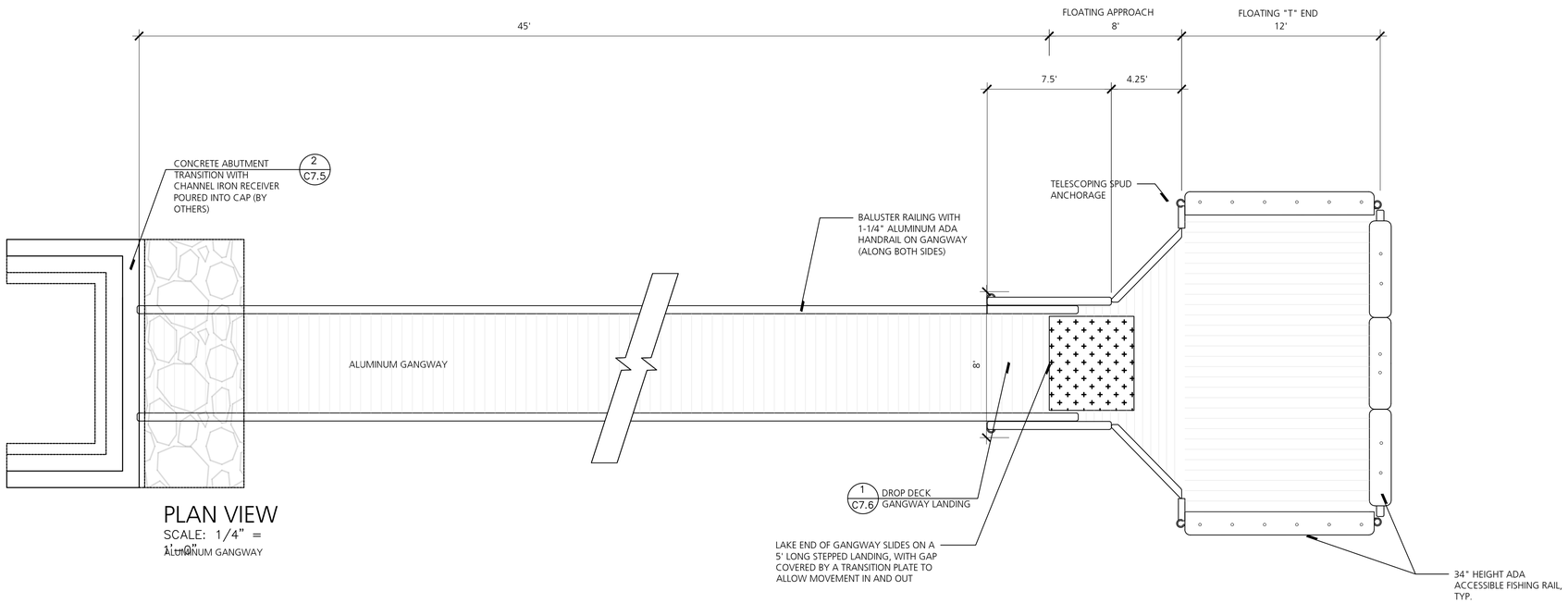
Approved: BB

Project Number

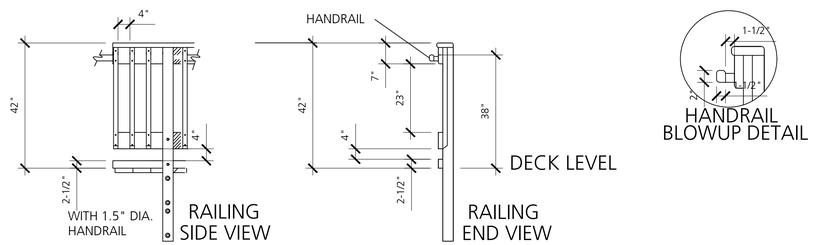
2022024

Sheet Number

C7.3 SITE DETAILS (4)



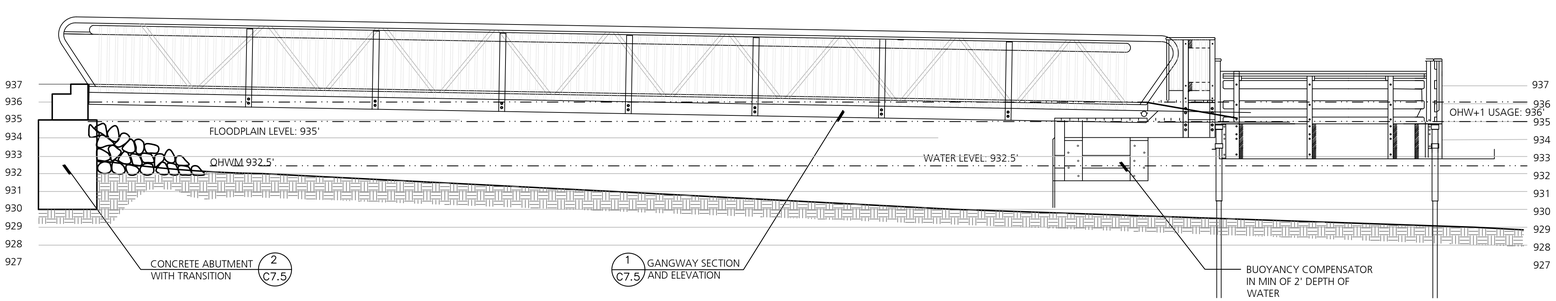
PLAN VIEW
SCALE: 1/4" = 1'-0"



HANDRAIL BLOWUP DETAIL

NOTE; 1-1/2" DIA. HANDRAIL RUNS FULL LENGTH OF APPROACH DOCK PLUS RAMP. BOTH SIDES.

RAILING DETAIL
NOT TO SCALE



SIDE ELEVATION
SCALE: 1/4" = 1'-0"

1 Fishing Pier and Gang Way Ramp Details
NO SCALE

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Approved: BB

Project Number

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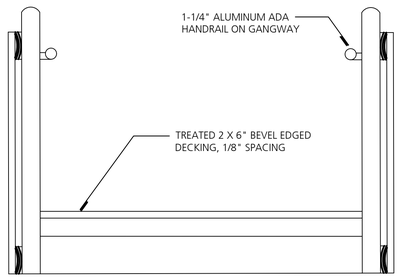
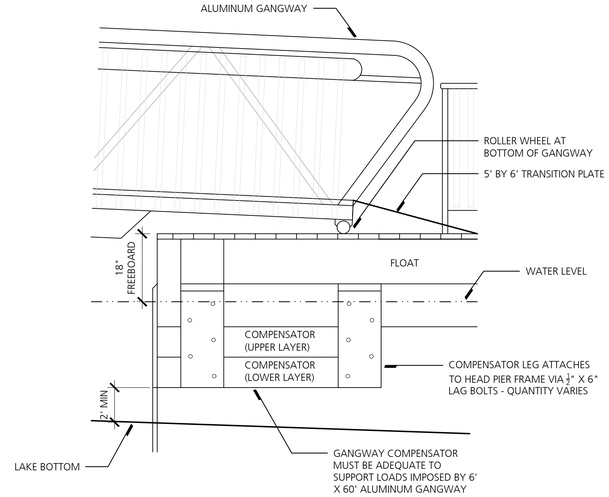
Sheet Number

C7.4 SITE DETAILS (5)



GANGWAY SECTION ELEVATION

NOT TO SCALE

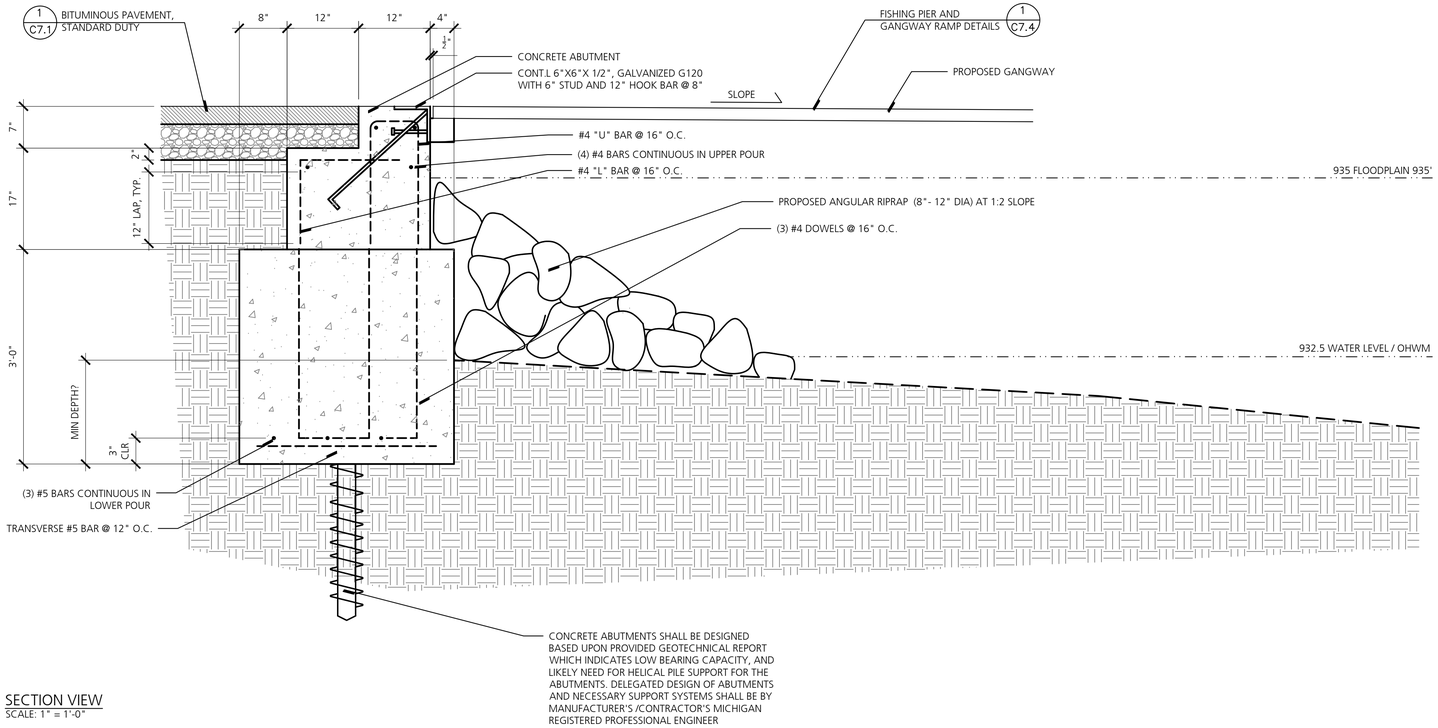


DROP DECK GANGWAY LANDING

NOT TO SCALE

1 Fishing Pier and Gang Way Ramp Details (Cont.)

NO SCALE



SECTION VIEW

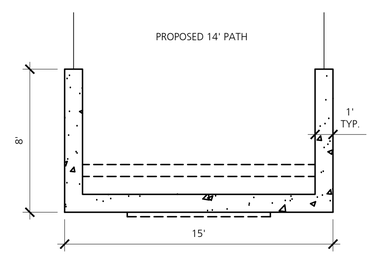
SCALE: 1" = 1'-0"

2 Concrete Abutment with Transition

NO SCALE

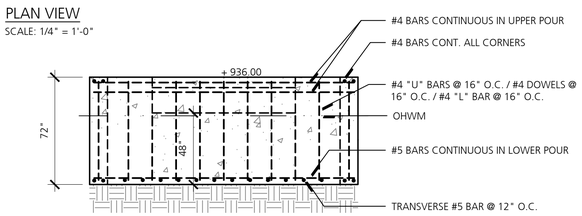
NOTES:

1. THE FISHING PIER SHOWN ON THIS SITE DETAIL SHEET ARE BASED OFF A PIER BY FLOTATION DOCKING SYSTEMS, INC. FROM CEDARVILLE, MICHIGAN (906.484.3422). IT IS NOT THE INTENT TO PRECLUDE ANY OTHER FISHING PIER SYSTEMS FROM A DIFFERENT MANUFACTURER. HOWEVER, THEY SHOULD COMPLY WITH THE REQUIRED DESIGN LOADS, DIMENSIONS AND BE CONSTRUCTED WITH THE SPECIFIED MATERIALS AND DETAILS. THEY SHOULD BE OF A QUALITY EQUAL TO OR BETTER THAN THE SPECIFICATIONS PROVIDED.
2. CONCRETE TO BE 5000psi AT 28 DAYS AND AIR ENTRAINED TO 6% +/- 1%. REBAR TO BE GRADE 60 EPOXY COATED BAR.
3. COVER AT UPPER POUR TO BE 1" MIN.
4. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS ON EXCAVATION AND DEWATERING.



PLAN VIEW

SCALE: 1/4" = 1'-0"



SECTION VIEW: ABUTMENT VIEWED FROM WATER

SCALE: 1/4" = 1'-0"

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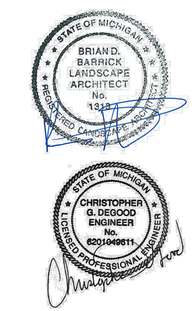

Seal

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Stanley Park
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MDNR Project No. 26-01868

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Quality Control

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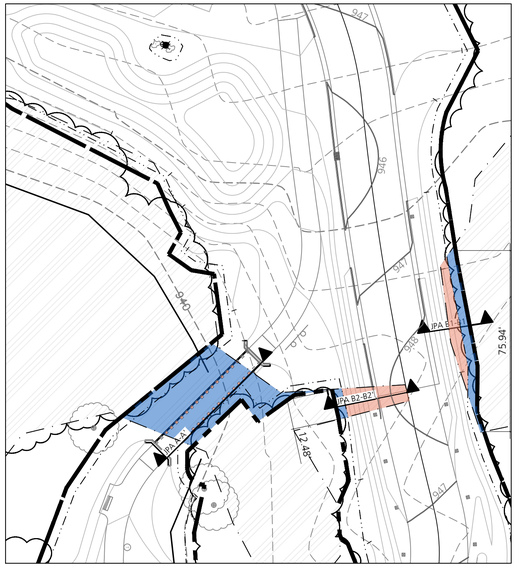
Approved: BB

Project Number

2022024

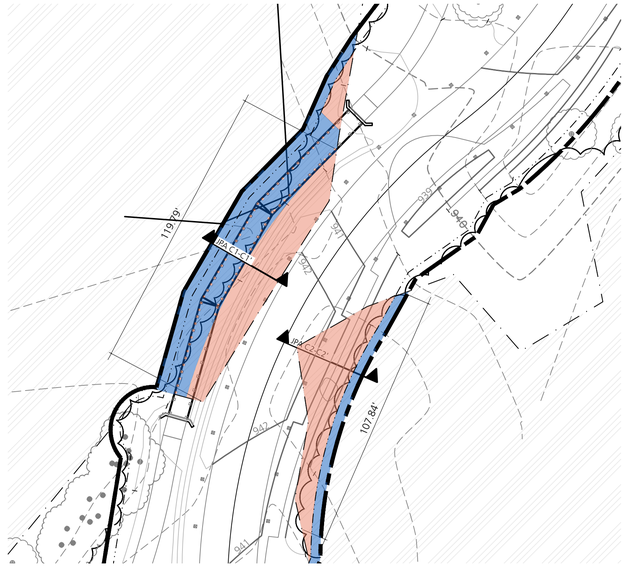
Sheet Number

C7.5 SITE DETAILS (6)

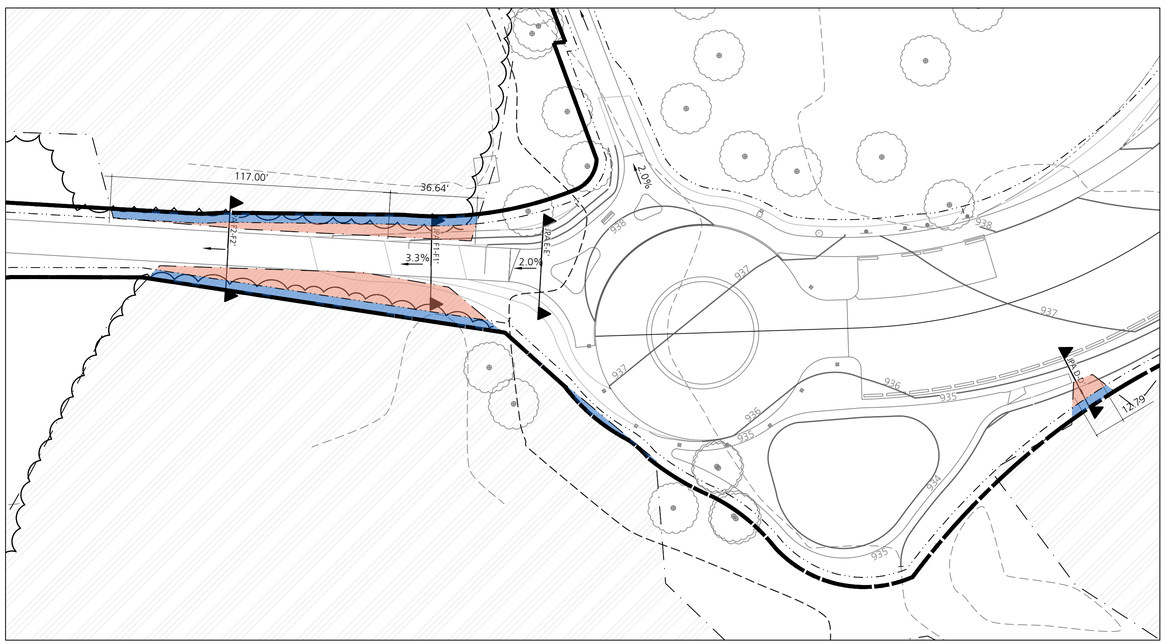


1 WETLAND IMPACT AREAS A-B

NO SCALE



2 WETLAND IMPACTS AREAS D-E

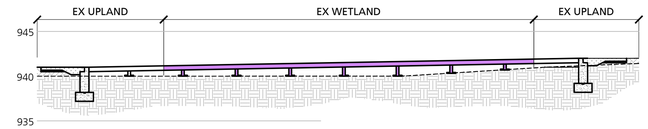


4 WETLAND IMPACTS AREAS F-G

NO SCALE

PLAN LEGEND, NORTH ARROW, AND SCALE

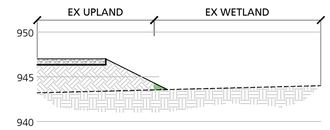
- EXISTING WETLAND
- EXISTING OHWM
- PROPOSED LIMIT OF WORK
- PROPOSED LIMIT OF GRADE
- TEMPORARY WETLAND IMPACTS
- PERMANENT WETLAND IMPACT



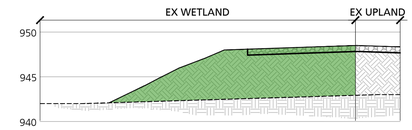
SECTION JPA A-A'

SECTION LEGEND

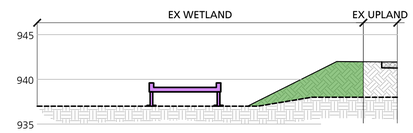
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED FILL IN THE WETLAND
- PROPOSED CUT IN THE WETLAND
- PROPOSED STRUCTURE IN THE WETLAND



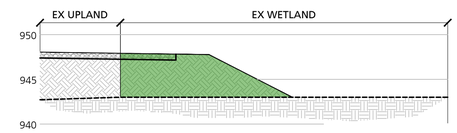
SECTION JPA B1-B1'



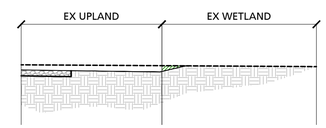
SECTION JPA B2-B2'



SECTION JPA C1-C1'

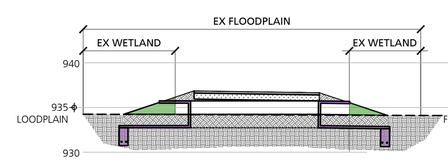


SECTION JPA C2-C2'

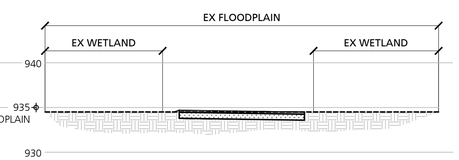


SECTION JPA D-D'

SECTION JPA E-E'



SECTION JPA F1-F1'



SECTION JPA F2-F2'

5 WETLAND IMPACT SECTIONS

NO SCALE

Wetland Impact Summary Table

Impact Area	Type	Wetland Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
A	Structure - Boardwalk	1386	29	0	0	Boardwalk Pan Footings sit on top of wetland, see Detail 1, sheet C7.4
B	Fill - Access Drive	313	384	59	0	Fill for access drive over culvert equalizer, soil and gravel
	Structure - Northern Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see detail Detail 1, sheet C8.0
C	Fill - Access Drive	407	2380	418	0	Fill for access drive over wetland culvert equalizer, soil and gravel - Detail 2, sheet C8.0
	Structure - Southern Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see detail Detail 2, sheet C8.0
	Structure - Boardwalk	1464	247	-	-	Boardwalk Pan Footings sit on top of wetland, see Detail 1, sheet C7.4
D	Other - Cut - Parking Lot	60	42	0	1	Cut for parking lot swale
F	Fill - Pathway (Bitimonious)	2445	243	16	0	Fill for pathway over culvert equalizer, soil,bitmonious paving, limestone
	Structure - Walkway Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see Detail 3, sheet C8.0
All	Other - Vegetation Removal	-	-	-	-	Veg removal impacts overlap with other impacts are are not double-counted in area, total is 8105 sf
	Total	6075	3325	493	1	
	Total Acres	0.14	0.08			

Wetland Impacts - Calculations

Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Cut Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA A-A'	0	0	0	8	0	0	0
JPA B1-B1'	1	0	0.6	76	2	0	2
JPA B2-B2'	118	0	118	13	57	0	57
JPA C1-C1'	31	0	31	120	138	0	138
JPA C2-C2'	70	0	70	108	280	0	280
JPA D-D'	0	1	-0.9	13	0	1	0
JPA F1-F1'	9	0	8.3	52	16	0	16
JPA F2-F2'	0	0	0	124	0	0	0

5 WETLAND IMPACT CALCULATIONS

NO SCALE

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Project Number

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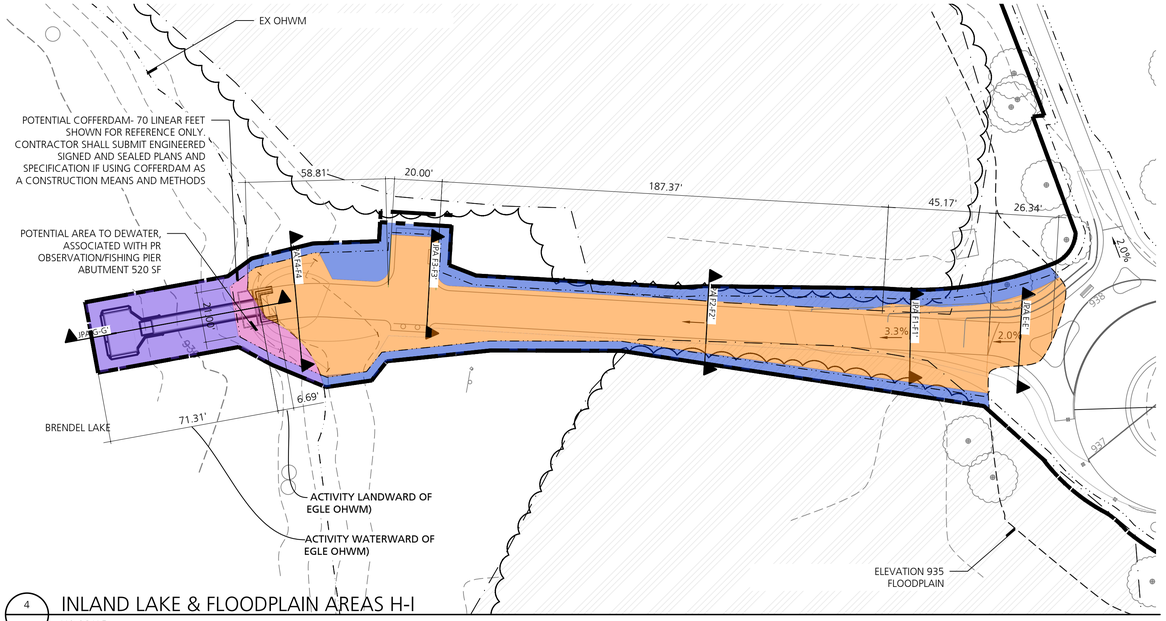
Sheet Number

C7.6 JPA PERMIT - WETLAND IMPACTS



4 INLAND LAKE & FLOODPLAIN AREAS H-I

NO SCALE

PLAN LEGEND, NORTH ARROW, AND SCALE

- EXISTING WETLAND
- EXISTING OHWM
- PROPOSED LIMIT OF WORK
- PROPOSED LIMIT OF GRADE
- TEMPORARY FLOODPLAIN IMPACTS
- PERMANENT FLOODPLAIN IMPACTS
- TEMPORARY IMPACTS BELOW OHWM
- PERMANENT IMPACTS BELOW OHWM

Floodplain Impact Summary Table						
Impact Area	Type	Floodplain Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
E	Fill - Pathway (Concrete)	190	875	35	0	Fill for pathway ramping down to lake access
F	Fill - Pathway (Bitimonious)	3439	8648	332	95	Fill for pathway over culvert equalizer, soil,bitmonious paving, limestone
	Structure - Abutment	-	43	12	-	Structure is approx 6 ft deep, 3 ft wide, and 31 ft long. and is 60% in floodplain, see detail 2/C7.6
All	Vegetation Removal	-	-	-	-	Veg removal impacts overlap with other impacts are are not double-counted in area
	Total	3629	9566	380	95	
.	Total Acres	0.08	0.22			

Floodplain Impacts Calculationss							
Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Dredge Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA E-E'	35	0	35	27	35	0	35
JPA F1-F1'	56	0	56	45	93	0	93
JPA F2-F2'	13	11	1.6	187	89	78	11
JPA F3-F3'	34	22	11.6	20	25	16	9
JPA F4-F4'	57	0	57	59	125	0	125

5 FLOODPLAIN IMPACTS CALCULATIONS

NO SCALE

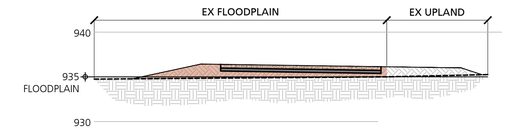
Lake Impacts Summary Table						
Impact Area	Type	Lake Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
F	Fill - Grading at Abutment	2015	404	17	0	Fill for pathway ramping up to abutment, soil,bitmonious paving, limestone
G	Fill - Rip Rap	0	90	8	6	Abutment protection
	Structure - Abutment	0	26	8	0	Structure is approx 6 ft deep, 3 ft wide, and 31 ft long. and is 40% in lake
	Total	2015	520	33	6	

Lake Impacts - Calculations							
Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Dredge Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA F4-F4'	7.6	0	7.6	59	17	0	17
JPA G-G'	8	6	2	27	8	6	2

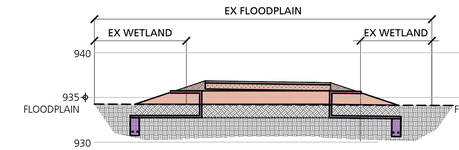
5 LAKE IMPACTS CALCULATIONS

NO SCALE

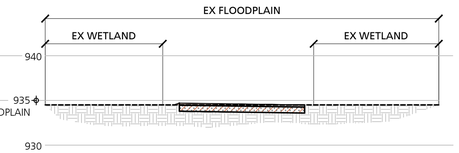
SECTION JPA D-D'



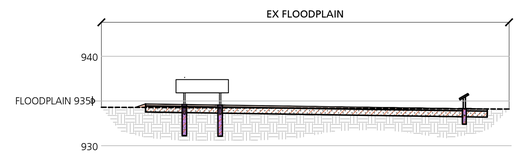
SECTION JPA E-E'



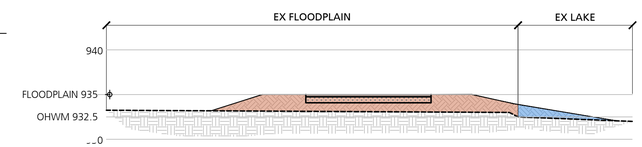
SECTION JPA F1-F1'



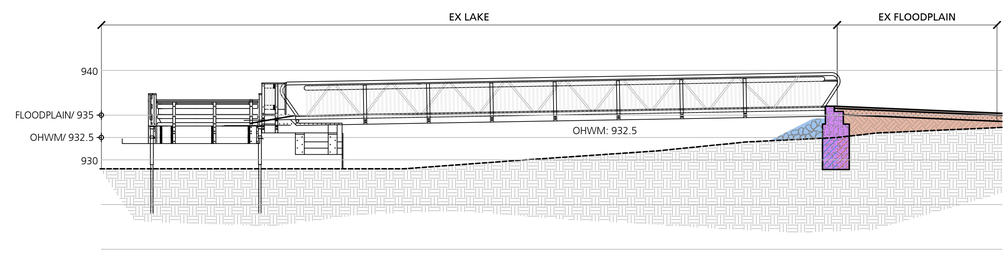
SECTION JPA F2-F2'



SECTION JPA F3-F3'



SECTION JPA F4-F4'



SECTION JPA G-G'

5 LAKE & FLOODPLAIN IMPACT SECTIONS

NO SCALE

SECTION LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED FILL IN THE FLOODPLAIN
- PROPOSED CUT, THEN FILL IN THE FLOODPLAIN
- PROPOSED FILL BELOW OHWM
- PROPOSED CUT, THEN FILL BELOW OHWM
- PROPOSED STRUCTURE IN THE FLOODPLAIN OR LAKE

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Landscape Architecture Planning, Engineering & Environmental Services

Beckett & Raeder, Inc.
535 West William, Suite 101
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01.04.2024	BIDDING

Scale

Quality Control

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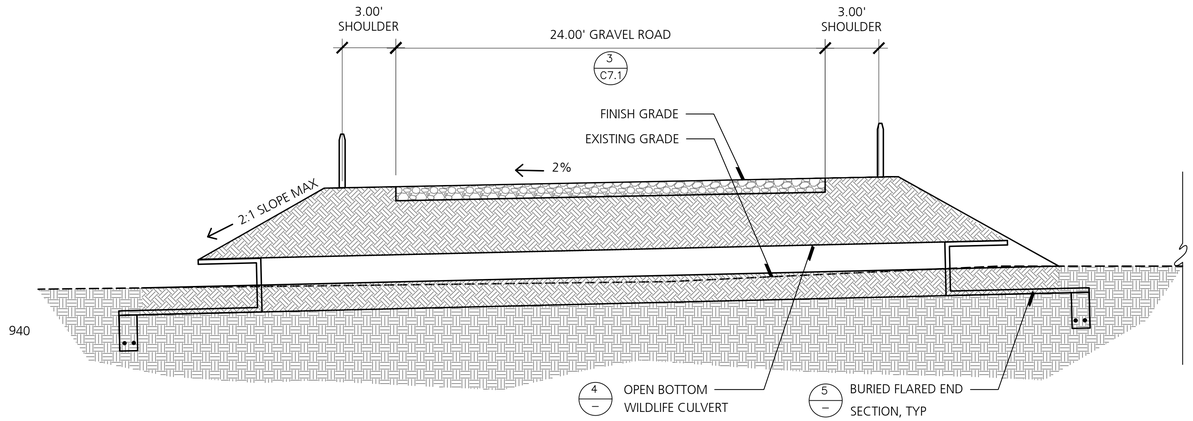
Checked: LDS, BB
Approved: BB

Project Number

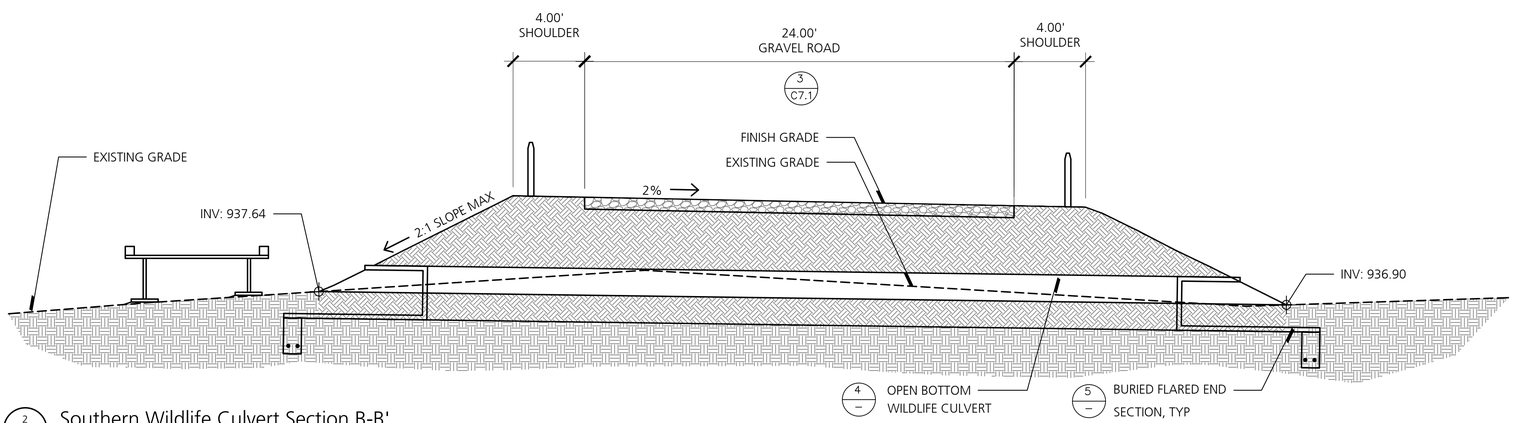
2022024

Sheet Number

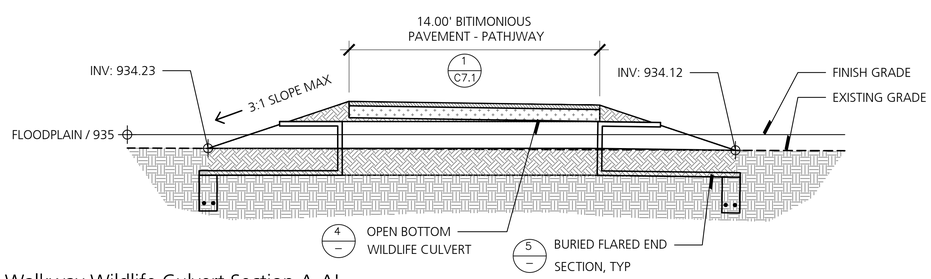
C7.7 JPA PERMIT - INLAND LAKE & FLOODPLAIN IMPACTS



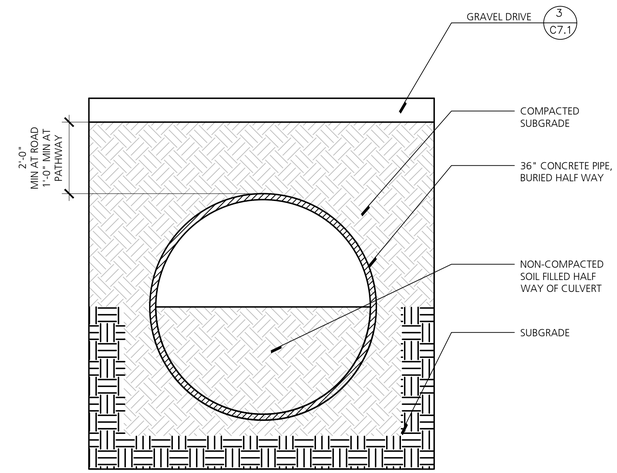
1 Northern Wildlife Culvert Section A-A'
NO SCALE



2 Southern Wildlife Culvert Section B-B'
NO SCALE

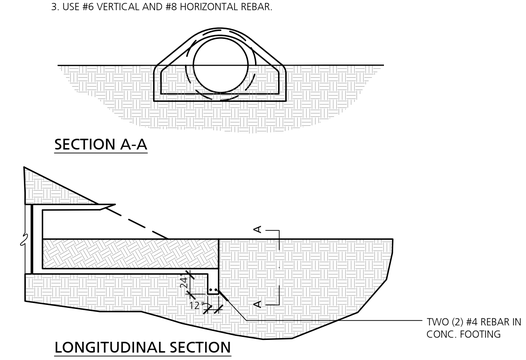


3 Walkway Wildlife Culvert Section A-A'
NO SCALE



4 Open Bottom Wildlife Culvert
NO SCALE

NOTES.
1. BAR GRATE IS REQUIRED AT ALL END SECTIONS, 18" DIA. OR LARGER.
2. END SECTIONS ARE ALL TO BE R.C.P., CLASS IV.
3. USE #6 VERTICAL AND #8 HORIZONTAL REBAR.



5 Buried Flared End Section
NO SCALE

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734 663.6759 fx

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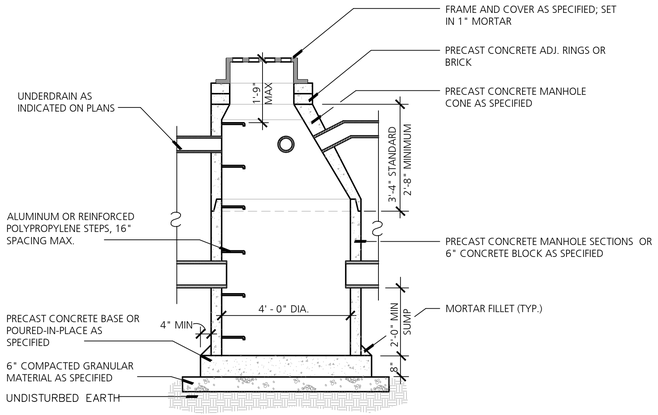
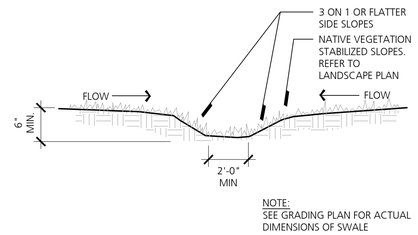
C8.0 UTILITY DETAILS (1)



1 Catch Basin
NOT TO SCALE



2 Vegetated Swale
NOT TO SCALE

NOTES.
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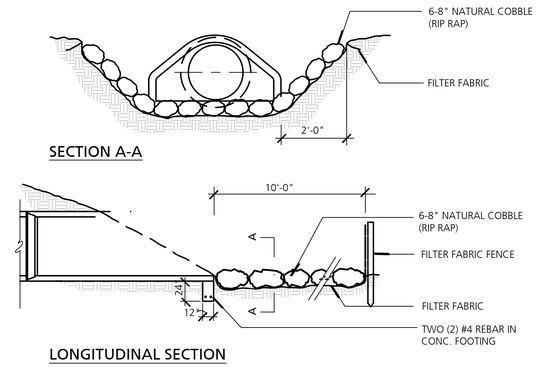
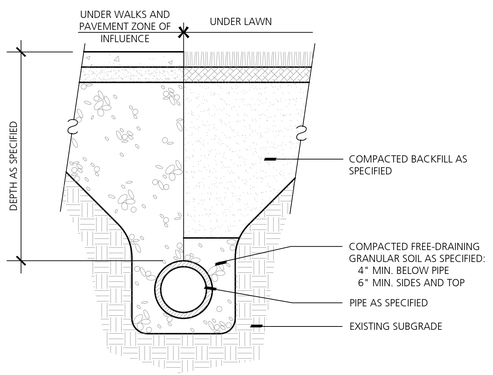
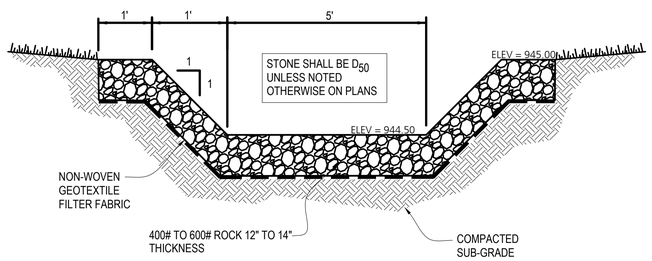


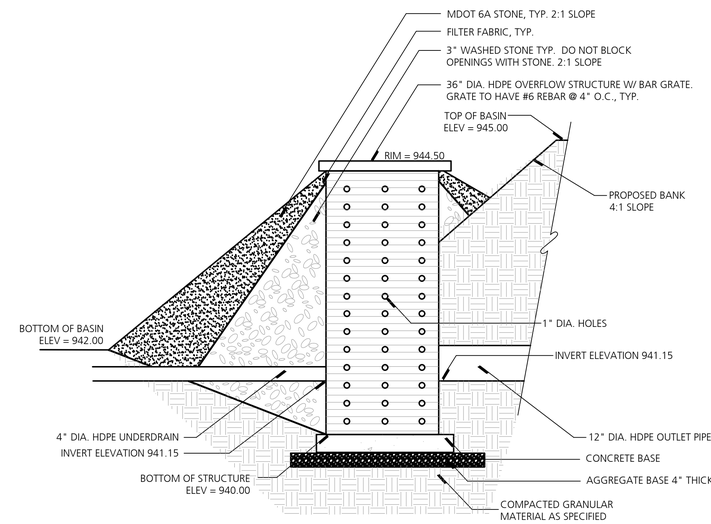
3 Flared End Section
NO SCALE



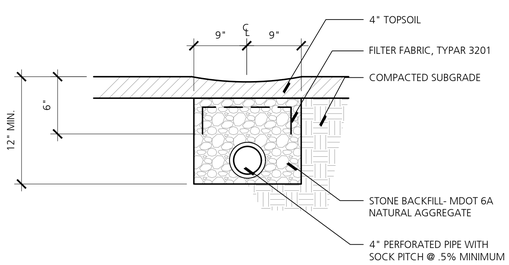
4 Trench Detail
NO SCALE



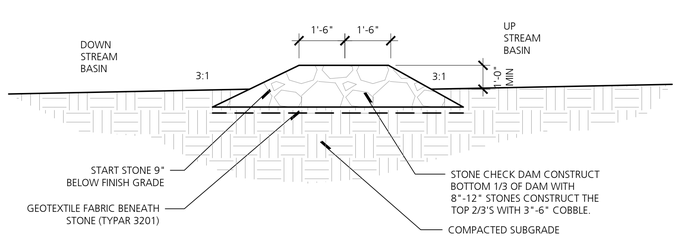
5 Basin Overflow Spillway
NO SCALE



6 Sediment Basin Outlet Control Structure
NO SCALE



7 Underdrain Drain
NO SCALE



8 Section Stone Check Dam
NO SCALE

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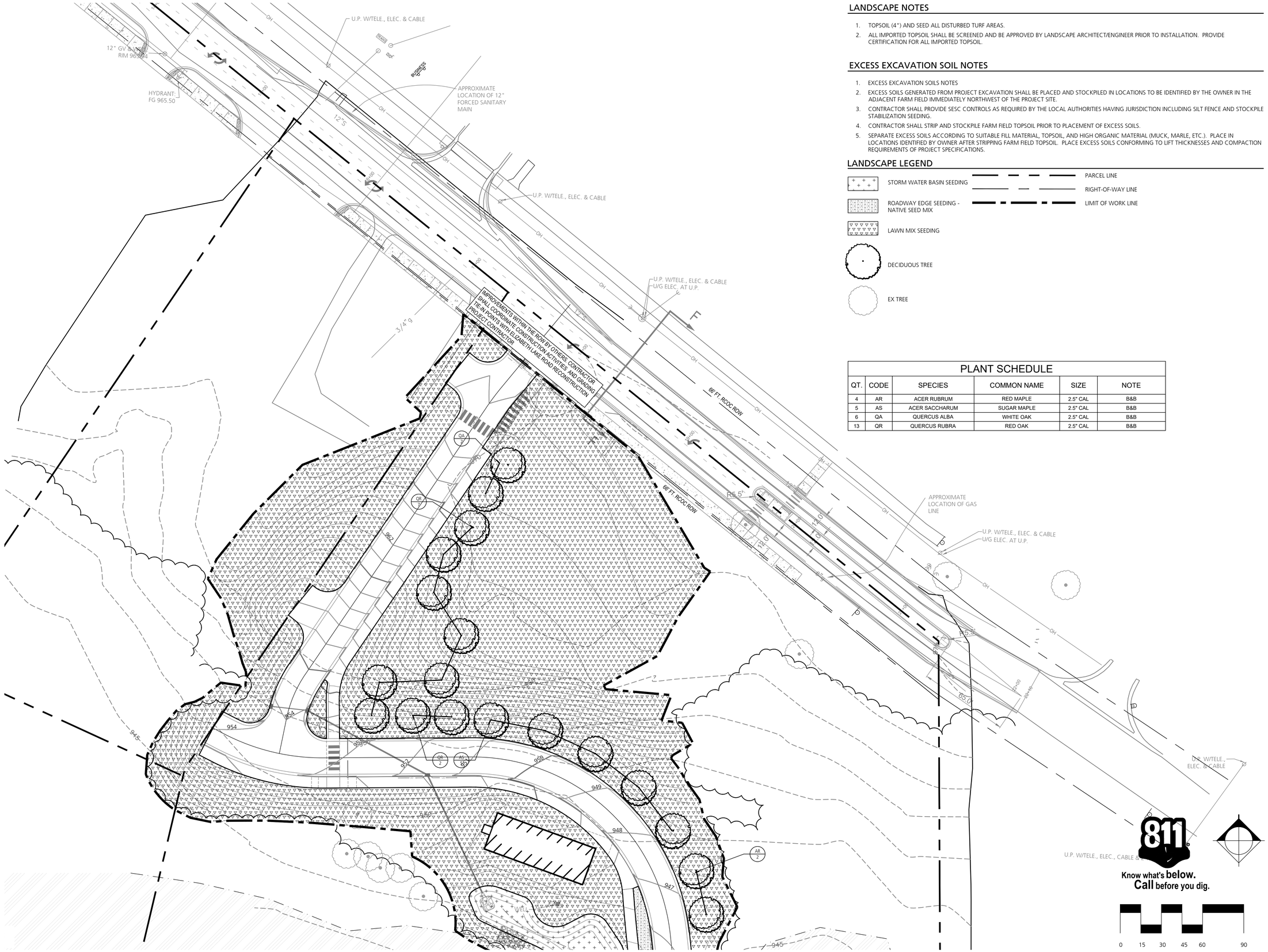
C8.1 UTILITY DETAILS (2)



LANDSCAPE NOTES

1. TOPSOIL (4") AND SEED ALL DISTURBED TURF AREAS.
2. ALL IMPORTED TOPSOIL SHALL BE SCREENED AND BE APPROVED BY LANDSCAPE ARCHITECT/ENGINEER PRIOR TO INSTALLATION. PROVIDE CERTIFICATION FOR ALL IMPORTED TOPSOIL.

EXCESS EXCAVATION SOIL NOTES

1. EXCESS EXCAVATION SOILS NOTES
2. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
3. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
4. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
5. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

LANDSCAPE LEGEND

- STORM WATER BASIN SEEDING
- ROADWAY EDGE SEEDING - NATIVE SEED MIX
- LAWN MIX SEEDING
- DECIDUOUS TREE
- EX TREE
- PARCEL LINE
- RIGHT-OF-WAY LINE
- LIMIT OF WORK LINE

PLANT SCHEDULE

QT.	CODE	SPECIES	COMMON NAME	SIZE	NOTE
4	AR	ACER RUBRUM	RED MAPLE	2.5" CAL	B&B
5	AS	ACER SACCHARUM	SUGAR MAPLE	2.5" CAL	B&B
6	QA	QUERCUS ALBA	WHITE OAK	2.5" CAL	B&B
13	QR	QUERCUS RUBRA	RED OAK	2.5" CAL	B&B

Know what's **below.**
Call before you dig.

0 15 30 45 60 90

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734 663.6759 fx

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STATE OF MICHIGAN
BRIAN D. BARRICK
LANDSCAPE ARCHITECT
No. 1313
REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN
CHRISTOPHER G. DEGOOD
ENGINEER
No. 6201049611
LICENSED PROFESSIONAL ENGINEER

Seal

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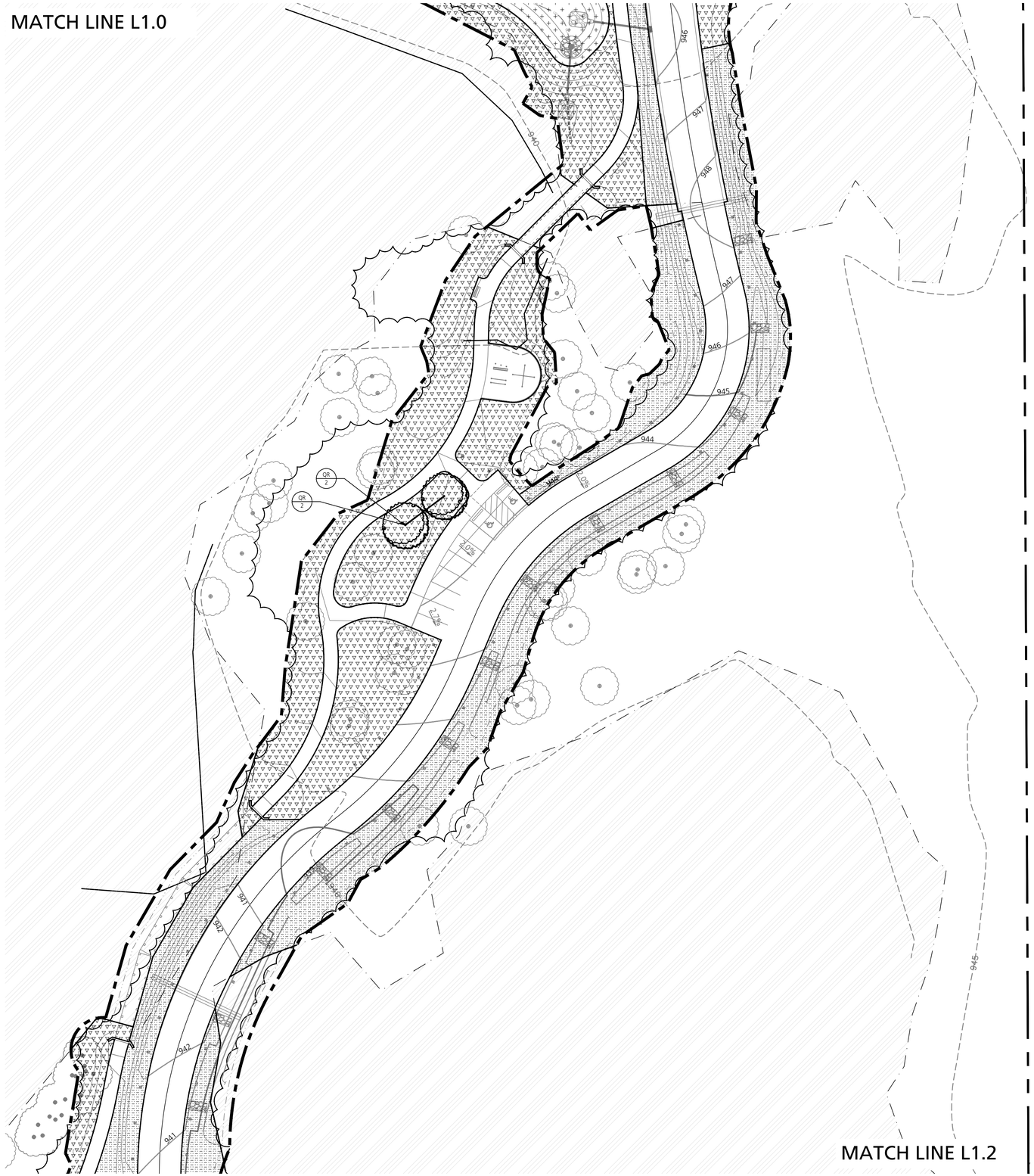
L1.0 LANDSCAPE PLAN - AREA A

MATCH LINE L1.0



MATCH LINE L1.2

LANDSCAPE PLAN NOTES & LEGENDS

SEE LANDSCAPE PLAN NOTES AND LEGENDS CAN BE FOUND ON L1.0

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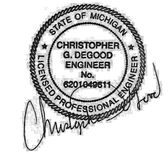

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Sheet Number

L1.1 LANDSCAPE PLAN - AREA B

811
Know what's **below.**
Call before you dig.

0 15 30 45 60 90

LANDSCAPE PLAN NOTES & LEGENDS

SEE LANDSCAPE PLAN NOTES AND LEGENDS CAN BE FOUND ON L1.0

Know what's **below.** **Call** before you dig.

0 15 30 45 60 90

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734 663.2622 ph
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Consultants

STATE OF MICHIGAN
BRIAN D. BARRICK
LANDSCAPE ARCHITECT
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REGISTERED LANDSCAPE ARCHITECT

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CHRISTOPHER G. DEGOOD
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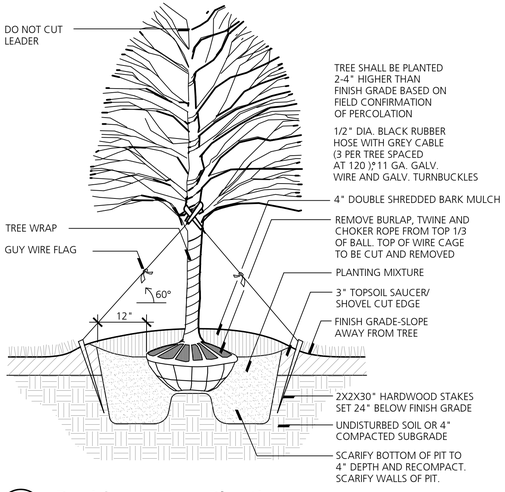
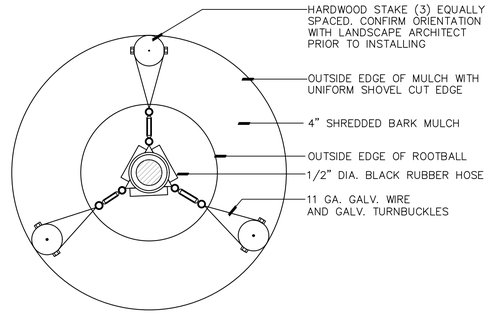
L1.2 LANDSCAPE PLAN - AREA C



1 **Deciduous Tree Planting**
NO SCALE



2 **Tree Staking**
NOT TO SCALE

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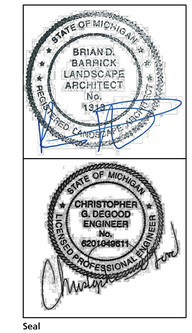

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L2.0 LANDSCAPE DETAILS (1)