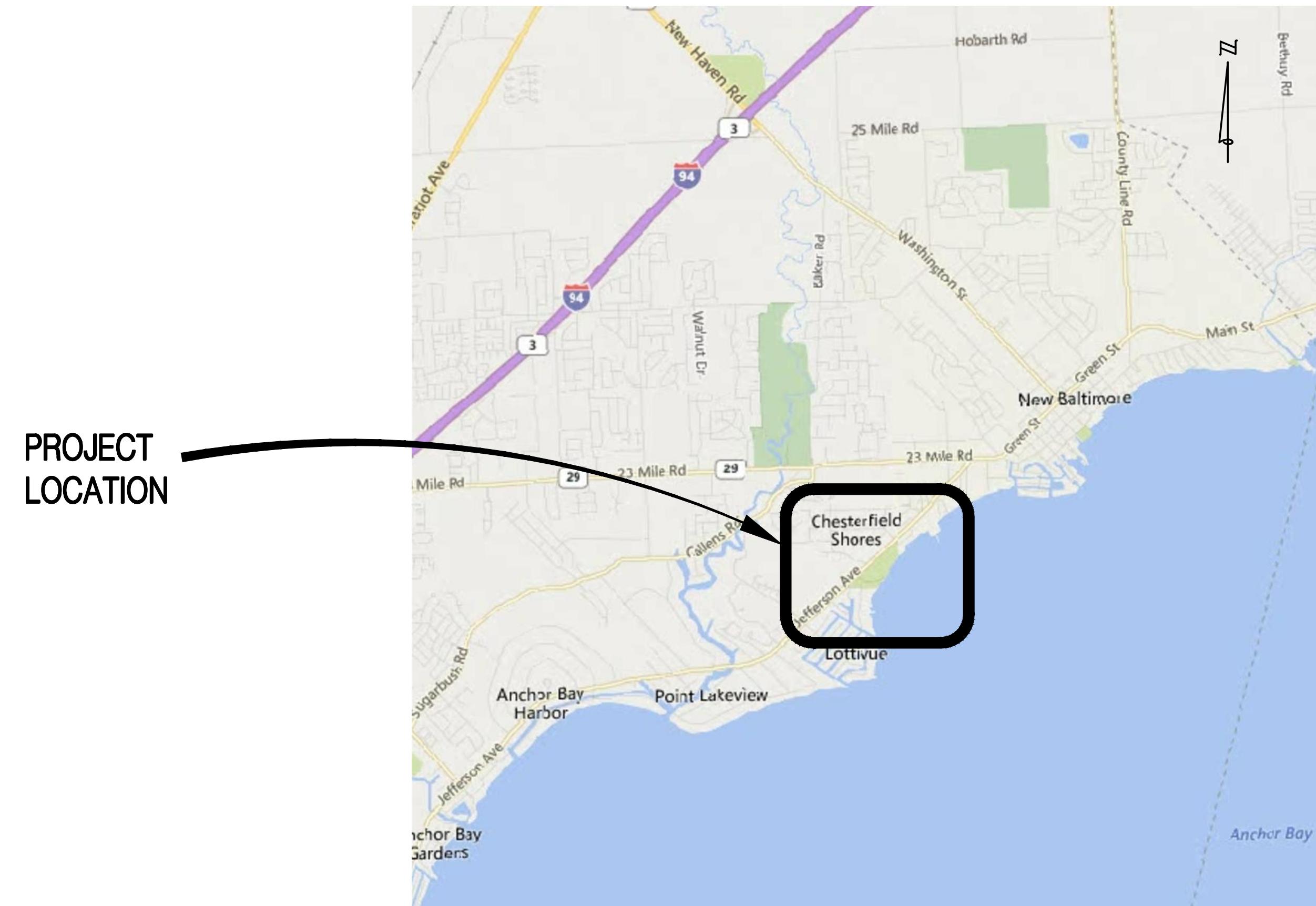


INDEX OF SHEETS	
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7	REMOVAL AND ACCESS PLAN
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CHARTER TOWNSHIP OF CHESTERFIELD MACOMB COUNTY, MICHIGAN

BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION



PROJECT
LOCATION

LOCATION MAP
N.T.S.




GENERAL PROVISIONS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. CHESTERFIELD TOWNSHIP WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATIONS SHOWN PURSUANT TO ACTS 173 & 174 OF THE P.A. OF 2013, AS A CONDITION OF THIS CONTRACT, NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT, PHONE (800) 482-7171 (OR 811). UTILITY SERVICE CONNECTIONS ARE NOT SHOWN ON THE PLANS AND ARE NOT THE RESPONSIBILITY OF THE CHESTERFIELD TOWNSHIP.

THE ELEVATIONS SHOWN ON THESE PLANS REFERENCE THE INTERNATIONAL GREAT LAKES DATUM (IGLD 1985).

APPLICATION DATE	PERMITS	APPROVAL DATE
	USACE/MDEQ JOINT PERMIT APPLICATION	
	MDEQ SOIL EROSION (NPDES) PERMIT	

CONTRACT FOR: BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION	
 <small>Advancing Communities</small> <small>34000 Plymouth Road Livonia, MI 48150</small> <small>P (734) 522-6711 F (734) 522-6427</small>	
PREPARED UNDER THE SUPERVISION OF:	
_____	_____
VALERIE NOVAES, P.E.	Registration No.
_____	Date
REVISIONS	
PROJECT NO. 0355-19-0010	SHEET NO. 1 OF 14

WATER & SEWER UTILITY SYMBOLS

EXISTING

- ST STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CULVERT
- CULVERT W/O END SECTION
- CULVERT W/END SECTION
- S SANITARY MANHOLE
- CO CLEAN OUT
- GV GW GATE VALVE & WELL
- GATE VALVE & BOX
- W WATER STOP BOX
- FH FIRE HYDRANT
- MP METER PIT
- WM WATER METER
- SH SPRINKLER HEAD
- IRRIGATION VALVE

PROPOSED

- STORM MANHOLE
- INLET/CATCH BASIN
- CULVERT END SECTION
- S SANITARY MANHOLE
- GV&W GATE VALVE & WELL
- GV&B GATE VALVE & BOX
- TSV&W TAPPING SLEEVE VALVE & WELL
- TSV&B TAPPING SLEEVE VALVE & BOX
- FH FIRE HYDRANT

REAL ESTATE SYMBOLS

- CONTIGUOUS PROPERTY SYMBOL
- PARCEL NUMBER BOX
- NO ROW IMPACTS

MISCELLANEOUS UTILITY SYMBOLS

EXISTING

- GUY WIRE
- GP GUY POLE
- U UTILITY POLE
- U UTILITY POLE W/LIGHT
- LIGHT/DECOR LAMP POLE
- FLOOD LIGHT
- GAS VALVE
- GAS VENT
- GAS METER
- GAS RISER
- TRAFFIC SIGNAL
- PEDESTRIAN RISER
- TRANSFORMER PAD
- U PRIVATE UTILITY MANHOLE
- R RAILROAD CROSSING
- E ELECTRIC METER
- PB PHONE BOOTH
- TS TRAFFIC SIGNAL CONTROLLER
- HAND HOLE
- E ELECTRIC RISER
- T TELEPHONE RISER
- C CABLE TV RISER
- W MONITORING WELL
- UNDERGROUND MARKER

MISCELLANEOUS SYMBOLS

EXISTING

- RIPRAP
- SIGN
- FLOW DIRECTION
- STUMP
- WETLAND
- CONIFEROUS TREE } CL 1 1" TO 5"
CL 2 6" TO 17"
CL 3 18" TO 35"
CL 4 36" AND UP
- DECIDUOUS TREE
- CONIFEROUS SHRUB
- DECIDUOUS SHRUB
- SB# SOIL BORING
- SECTION CORNER
- MONUMENT
- IRON ROD/PIPE
- PK NAIL
- BM# BENCHMARK
- TP# TRAVERSE POINT
- MAIL/NEWSPAPER BOX
- FP FLAG POLE
- POST

HAZARDOUS OR FLAMMABLE MATERIAL

USED WITH UNDERGROUND GAS & ELECTRICAL LINES

CAUTION - CRITICAL UNDERGROUND UTILITY

USED WITH TELEPHONE & FIBER OPTIC LINES

PROPOSED

- RIPRAP
- SIGN
- FLOW DIRECTION
- STRUCTURE NUMBER
WM WM SAN STM
- ADA SIDEWALK RAMP

UTILITY PATTERN

EXISTING

- ELEC ELECTRICAL *
- 6" (COMPANY) GAS GAS\OIL
- (COMPANY) CABLE/TEL CABLE/TELEPHONE *
- FIBER OPTIC FIBER OPTIC *
- 12" WM WATER
- 12" SAN SANITARY
- 12" STM STORM

PROPOSED

- 12" ~~~~ STORM/SANITARY/WATER
- 12" ~~~~ PRIMARY UTILITY WILL HAVE A CONTINUOUS LIFESTYLE, WITH THE SECONDARY UTILITY MATCHING ITS RESPECTIVE EXISTING UTILITY LIFESTYLE

*OH = OVERHEAD , UG = UNDERGROUND

ROW PATTERN

EXISTING

- ROW ROW
- SECTION
- PROPERTY/PARCEL

PROPOSED

- ROW ROW

TOPO PATTERN

EXISTING

- HEDGE/TREE
- FENCE
- GUARDRAIL
- CENTERLINE OF DITCH
- RAILROAD
- WETLAND/EDGE OF WATER

PROPOSED

- GRADING LIMIT (SLOPE STAKE)
- CENTERLINE OF DITCH
- GUARDRAIL
- FENCE

REMOVAL LEGEND

- SIDEWALK REMOVAL
- HMA SURFACE REMOVAL
- PAVEMENT REMOVAL
- COLD MILLING HMA SURFACE
- HMA BASE CRUSHING AND SHAPING
- EXCAVATION, EARTH, MODIFIED
- CURB AND GUTTER, REM
- TREE, REM
- S-XXXXXX SALVAGE
- B-XXXXXX BULKHEAD
- A-XXXXXX ABANDON
- R-XXXXXX REMOVE
- ADJ-XXXXXX ADJUST
- REL-XXXXXX RELOCATE
- REC-XXXXXX RECONSTRUCT
- R B/O-XXXXXX REMOVE BY OTHERS
- ADJ B/O-XXXXXX ADJUST BY OTHERS
- REL B/O-XXXXXX RELOCATE BY OTHERS

IF NECESSARY FOR CLARITY

- SALVAGE
- BULKHEAD
- ABANDON
- CLEARING
- REMOVE
- RELOCATE
- RECONSTRUCT
- RELOCATE BY OTHERS
- ADJUST BY OTHERS

SPECIAL LEGEND

- WHOLE TREE
- SLABSTONE STRUCTURE
- STACKED SLABSTONE STRUCTURE



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Livonia, MI 48150
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REVISIONS

DATE

PROJECT

CITY/TOWNSHIP

SCALE

COUNTY

MAP

DATE

PROJECT

DATE

PROJECT

DATE

PROJECT

DATE

CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION

LEGEND

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SHEET

2

OF 14

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LOCATION AND SCOPE OF PROJECT

BRANDENBURG PARK IS LOCATED ON JEFFERSON AVENUE ABOUT 1/4 MILE SOUTH OF 23 MILE ROAD IN CHESTERFIELD TOWNSHIP, MACOMB COUNTY, MI. THE 17-ACRE PARK IS LOCATED ON THE NORTHWEST SHORELINE OF ANCHOR BAY, THE WORK TO BE DONE UNDER THIS CONTRACT INCLUDES THE FURNISHING OF ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO CONSTRUCT A LIVING SHORELINE, RUBBLE MOUND BREAKWATER AND VARIOUS HABITAT STRUCTURES.

GENERAL NOTES

- THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- IT IS THE INTENTION OF THESE PLANS TO CONSTRUCT ALL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE PLANS REFERENCED HEREIN, AND ANY APPLICABLE REQUIREMENTS OF THE FOLLOWING:
 - MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY,
 - GREAT LAKES COMMISSION,
 - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
- WHERE THERE IS A CONFLICT BETWEEN ANY OF THE AFOREMENTIONED SPECIFICATIONS AND THE PERMIT REQUIREMENTS OF THE AGENCY CONTROLLING THE WORK ALLOWED ON SITE TO THE RESPECTIVE UTILITY OR RIGHTS-OF-WAY, THE MORE RESTRICTIVE SHALL GOVERN.
- THE CONTRACTOR AND SUBCONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING AT A TIME AND PLACE ARRANGED BY THE ENGINEER IN WHICH THE AFFECTED UTILITY COMPANIES AND GOVERNMENT AGENCY REPRESENTATIVES WILL BE PRESENT. ALSO, A PRE-CLEARING WALK-THROUGH WILL NEED TO BE ATTENDED BY THE CONTRACTOR.
- AFTER A PRE-CONSTRUCTION MEETING IS HELD, THE CONTRACTOR SHALL NOTIFY THE CHESTERFIELD TOWNSHIP PUBLIC WORKS (586-949-0400), A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR INSPECTION. NO WORK CAN COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED AND THE CONTRACTOR HAS BEEN GIVEN AUTHORIZATION TO PROCEED.
- ALL ELEVATIONS REFER TO CURRENT INTERNATIONAL GREAT LAKES DATUM OF 1985 (IGLD '85).
- ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION OF THE PROPERTY OR FACILITY BY THE CONTRACTOR AT THEIR OWN EXPENSE. UNDER NO CIRCUMSTANCES, SHALL HEAVY EQUIPMENT DRIVE ON THE EXISTING PAVED PARKING LOT.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY BARRICADES AND TRAFFIC CONTROL DEVICES REQUIRED BY CHESTERFIELD TWP, MACOMB COUNTY DEPARTMENT OF ROADS (MCDR), AND CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- IF, IN THE OPINION OF THE ENGINEER, WORK HAS NOT PROGRESSED IN A REASONABLE AND TIMELY MANNER, THE ENGINEER SHALL HAVE THE RIGHT, WITH THE APPROVAL OF THE TOWNSHIP, TO DIRECT THE CONTRACTOR TO PROCEED WITH THE WORK OR ANY PORTION THEREOF IMMEDIATELY, IN THE EVENT THAT THE CONTRACTOR DOES NOT PROCEED WITH THE WORK IMMEDIATELY, AS DIRECTED BY THE ENGINEER. THE ENGINEER, UNDER THE DIRECTION OF CHESTERFIELD TOWNSHIP, MAY ORDER ANY OR ALL OTHER OPERATIONS OF THE CONTRACTOR, UNDER THIS CONTRACT, TO CEASE UNTIL THE FINAL CLEANUP AND RESTORATION WORK IS PROCEEDING IN AN ACCEPTABLE MANNER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THESE PROVISIONS, THE TOWNSHIP MAY, WITH OR WITHOUT NOTICE, CAUSE THE REQUIRED RESTORATION AND CLEANUP TO BE DONE BY THE TOWNSHIP OR OTHERS AND WILL DEDUCT THE COST OF SAID WORK FROM ANY MONEY DUE OR TO BECOME DUE THE CONTRACTOR UNDER THIS CONTRACT. THE PERFORMANCE OF SUCH WORK BY THE TOWNSHIP OR OTHERS SHALL SERVE IN NO WAY TO RELEASE THE CONTRACTOR FROM HIS GENERAL OR PARTICULAR LIABILITY FOR THE SAFETY OF THE PUBLIC OR THE WORK.
- ALL ITEMS REFERRED TO AS "INCIDENTAL" OR "COST SHALL BE INCIDENTAL" SHALL BE INCLUDED IN THE UNIT PRICES LISTED IN THE CONTRACT DOCUMENTS. NO SEPARATE COSTS WILL BE ACCEPTED.

UTILITIES

THE FOLLOWING UTILITY COMPANIES HAVE FACILITIES WITHIN THE PROJECT LIMITS:

- | | |
|---|--|
| 1. CHESTERFIELD TOWNSHIP
52216 SIERRA DRIVE
CHESTERFIELD, MI 48047
ATT: DON CODDINGTON
PH: 586-949-0400 | 4. FOR TELEPHONE:
ATT (FORMERLY SBC)
54 N. MILL ST, 4TH FLOOR
PONTIAC, MI 48342
ATTN: LINDA DENNISUK
PH: 248-456-8256 |
| 2. FOR ELECTRIC:
DETROIT EDISON
ONE ENERGY PLAZA, 518 SB
DETROIT, MI 48226
ATTN:
PH: 313-235-5632 | 5. FOR GAS:
SEMCO ENERGY
1411 THIRD ST, SUITE A
PORT HURON, MI 48060
ATTN: RYAN CAMERON
PH: 810-887-3085 |
| 3. FOR CABLE TELEVISION:
ATT (FORMERLY SBC)
54 N. MILL ST, 4TH FLOOR
PONTIAC, MI 48342
ATTN: LINDA DENNISUK
PH: 248-456-8256 | 6. FOR FIBER OPTIC:
ATT (FORMERLY SBC)
54 N. MILL ST, 4TH FLOOR
PONTIAC, MI 48342
ATTN: LINDA DENNISUK
PH: 248-456-8256 |

THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING AND VERIFYING THE LOCATION, DEPTH AND ELEVATION OF EXISTING UTILITIES, AND PROPOSED UTILITIES CROSSING THE CONSTRUCTION AREA PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF ANY CONFLICTS ARE APPARENT OR IF LOCATIONS AND DEPTHS DIFFER SIGNIFICANTLY FROM THE PLANS. THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. CHESTERFIELD TOWNSHIP WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATIONS SHOWN PURSUANT TO ACTS 173 & 174 OF THE P.A. OF 2013, AS A CONDITION OF THIS CONTRACT, NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT, PHONE (800) 482-7171 OR 811 A MINIMUM OF THREE WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS & HOLIDAYS. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM. UTILITY LOCATIONS SHOWN ON THE PLANS ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR VERIFYING THE LOCATION OR ALL UTILITIES.

GENERAL LANDSCAPE NOTES

- CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.
- ALL WORK TO BE PERFORMED BY LICENSED AND INSURED CONTRACTORS AND EXPERIENCED WORKERS.
- REFER TO DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- THE CONTRACTOR SHALL KEEP ALL DRAINAGE FACILITIES (CATCH BASINS, YARD DRAINS, ETC.) AFFECTED BY HIS CONSTRUCTION OPERATIONS CLEAN AND FULLY OPERATIONAL AT ALL TIMES.
- CONTRACTOR SHALL REPAIR AT HIS OWN EXPENSE, ANY DAMAGE, WHETHER INSIDE OR OUTSIDE OF THE PROJECT LIMITS, TO UTILITY SYSTEMS, SURFACE PAVEMENTS, FIXTURES, STRUCTURES, AND/OR EXISTING TREES OR LANDSCAPING THAT ARE NOT SPECIFICALLY INDICATED TO BE REMOVED OR RELOCATED AS PART OF THE PROJECT CONSTRUCTION. IN THE EVENT THAT ANY EXISTING DRAINAGE STRUCTURES OR UTILITIES ARE DAMAGED AND THE SERVICES INTERRUPTED, THE LINES SHALL BE IMMEDIATELY REPAIRED AND THE SERVICES RESTORED AS DIRECTED BY THE ENGINEER.
- IN THE EVENT THAT DISCREPANCIES ARISE BETWEEN WHAT IS SHOWN ON THE DRAWINGS AND ACTUAL FIELD CONDITIONS THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR RESOLUTION.

LANDSCAPE LAYOUT NOTES

- ALL DIMENSIONS SHOWN ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.
- DO NOT SCALE DRAWINGS. UTILIZE DIMENSIONS INDICATED ON THE PLANS.
- LAYOUT ALL CONSTRUCTION LINES AND VERIFY LAYOUT WITH THE ENGINEER PRIOR TO BEGINNING ANY CONSTRUCTION WORK.
- STAKE TREES ON-SITE FOR FINAL APPROVAL BY ENGINEER PRIOR TO PLANTING.
- REFER TO GENERAL NOTES AND PLANTING NOTES FOR ADDITIONAL INSTRUCTIONS.
- FIELD VERIFY ALL PROPOSED AND EXISTING UTILITY LOCATIONS.
- THE CONTRACTOR SHALL COORDINATE ALL WORK AND BE RESPONSIBLE FOR ALL METHODS, MEANS, SEQUENCE, AND PROCEDURES OF THE WORK.

PLANTING NOTES

- SECURE PLANT MATERIAL AS SPECIFIED ON PLANS. IN THE EVENT THAT PLANT MATERIALS SPECIFIED ARE NOT AVAILABLE, CONTRACTOR SHALL SUBMIT ALTERNATES TO ENGINEER FOR APPROVAL PRIOR TO SUBMITTING A BID. NO SUBSTITUTIONS FOR PLANT MATERIALS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER.
- VERIFY THAT ALL PLANTING PRODUCTS, PLANT MATERIAL, AND PLANT QUANTITIES DELIVERED TO THE SITE MATCH WHAT IS INDICATED ON THE PLANS AND SPECIFICATIONS.
- PROTECT ALL PLANT MATERIAL DURING DELIVERY TO PREVENT DAMAGE TO ROOT BALLS, TRUNKS, BRANCHES AND THE DESICCATION OF LEAVES. PROTECT ALL PLANT MATERIAL DURING SHIPPING WITH SHADE CLOTH OR SHIP WITH ENCLOSED TRANSPORT. MAINTAIN PROTECTIONS AND HEALTH OF PLANT MATERIAL STORED ON SITE. HANDLE ALL TREES WITH NYLON STRAPS. NO CHAINS OR CABLES ALLOWED. REMOVE UNACCEPTABLE PLANT MATERIAL IMMEDIATELY FROM THE SITE.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN, WELL FORMED, TRUE TO SPECIES, HARDENED OFF WITH VIGOROUS ROOT SYSTEMS, FULL CROWN AND CANOPIES, AND FREE FROM DISEASE, PESTS AND INSECTS, AND DEFECTS SUCH AS KNOTS, SUN SCALD, WINDBURN, LEAF DISCOLORATION, IRREGULAR BRANCHING OR INJURIES. ALL SHRUBS, LIVE STAKES AND PLUGS SHALL CONFORM TO THE SIZE STANDARDS SET FORTH IN "AMERICAN STANDARDS FOR NURSERY STOCK".
- PROVIDE SOURCE INFORMATION AND PLANT SAMPLES OR PHOTOGRAPHS OF EACH PLANT SPECIFIED TO THE ENGINEER FOR COMPLIANCE REVIEW PRIOR TO SHIPMENT.
- ALL PLANT MATERIAL DELIVERED TO THE SITE IS SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER BEFORE, DURING AND AFTER INSTALLATION.
- THE ENGINEER RESERVES THE RIGHT TO INSPECT AND/OR SELECT ANY AND ALL PLANT MATERIAL AT THE NURSERY PRIOR TO DELIVERY TO THE SITE.
- TEST FILL ALL SHRUB PLANTING PITS WITH WATER PRIOR TO PLANTING, TO ASSURE PROPER SOIL PERCOLATION. PITS WHICH DO NOT ADEQUATELY DRAIN SHALL BE FURTHER EXCAVATED TO A DEPTH SUFFICIENT FOR DRAINAGE TO OCCUR AND/OR BACKFILLED WITH SUITABLE DRAINAGE GRAVEL. NO ALLOWANCES SHALL BE MADE FOR PLANT MATERIAL LOSS DUE TO IMPROPER DRAINAGE.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANT MATERIAL WITH SAME SIZE AND SPECIES AT NO ADDITIONAL COST TO OWNER.
- ALL PLANT MATERIALS, INCLUDING RELOCATED PLANT MATERIAL, SHALL BE PLANTED IN A PROFESSIONAL MANNER TYPICAL TO THE INDUSTRY STANDARDS TO ASSURE COMPLETE SURVIVABILITY OF ALL INSTALLED PLANT MATERIALS AS WELL AS TO PROVIDE AN AESTHETICALLY APPROVED PROJECT. CONTRACTOR SHALL REFER TO THE PLANTING DETAILS FOR MINIMUM SIZE AND WIDTH OF PLANTING BEDS, MULCHING, AND OTHER PLANTING REQUIREMENTS.
- LAWN AREAS TO PROVIDE A SMOOTH AND CONTINUAL GRADE.
- SHRUBS SHALL HAVE A MINIMUM OF 4" DEPTH OF DOUBLE SHREDDED HARDWOOD MULCH AND SHALL BE CONSISTENT WITH PLANTING DETAILS AND SPECIAL PROVISIONS. LIVE STAKES AND PLANTING PLUGS SHALL NOT BE MULCHED. SHRUBS SHALL HAVE A TWO FOOT DIAMETER MULCH RING.
- ALL AREAS WITH PROPOSED PLANTS SHALL HAVE AN EROSION CONTROL BLANKET APPLIED TO SECURE SOILS WHILE PLANTINGS ESTABLISH.
- ALL PLANTINGS IN THE UPLAND PLANTING AREA SHALL HAVE A 6" LAYER OF PLANTING MIX APPLIED. ALL OTHER AREAS SHALL UTILIZE EXISTING SITE SOILS FOR PLANTING. WHEN PLANTING SHRUBS, PLANT MATERIAL PITS SHALL BE BACKFILLED WITH EXISTING SITE SOILS DUG UP FROM PLANTING PITS. EXISTING SOILS USED FOR BACKFILL OF SHRUB PLANTINGS SHALL BE AERATED AND STIRRED PRIOR TO BACKFILLING, AS DESCRIBED IN THE PLANTING DETAILS AND SPECIAL PROVISIONS.

PLANTING NOTES CONTINUED

- ALL PLANTING AREAS SHALL BE WEED FREE PRIOR TO PLANTING INSTALLATION.
- REMOVE ALL PLANTING AND LANDSCAPE DEBRIS FROM THE PROJECT SITE AND SWEEP AND WASH CLEAN ALL PAVED AND FINISHED SURFACES IMPACTED BY THE LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL COORDINATE PLANTING PERIODS WITH INITIAL MAINTENANCE PERIODS TO PROVIDE THE REQUIRED MAINTENANCE FROM THE DATE OF PLANTING COMPLETION. ALL PLANTING SHALL OCCUR DURING ONE OF THE FOLLOWING PERIODS:
 - SPRING PLANTING: APRIL 15 - JUNE 1
 - FALL PLANTING: SEPTEMBER 1 - OCTOBER 15
 - STAKE PLANTING: NOVEMBER 15 - APRIL 15, UNLESS GROUND IS FROZEN
- FERTILIZERS AND PESTICIDES SHALL NOT BE USED WITHIN PROJECT LIMITS.
- ALL SHRUBS, LIVE STAKES AND PLANT PLUGS SHALL BE ARRANGED IN A WAY SO AS TO PROMOTE EVEN DISTRIBUTION OF SPECIES THROUGHOUT PROJECT SITE.
- REFER TO GENERAL LANDSCAPE NOTES FOR ADDITIONAL INSTRUCTIONS.
- SEE SHEET #12 FOR PLANTING DETAILS

AQUATIC PLANTING

- STOCK SHALL NOT BE SHIPPED UNTIL THE PLANTING AREA HAS BEEN PREPARED. SHIPPING SHALL BE SCHEDULED TO RESULT IN A STORAGE TIME OF NO MORE THAN 24 HOURS.
- TUBERS, ROOTSTOCK AND HERBACEOUS SEEDLINGS SHALL BE INDIVIDUALLY LABELLED OR LABELLED IN BUNDLES.
- PLANTS SHALL BE STORED TO ENSURE VIABILITY. STORAGE PROCEDURES MAY INCLUDE THE OPENING OF STORAGE CONTAINERS, STORAGE IN WATER, AND/OR REFRIGERATION.
- ALL PLANTS SHALL BE HEALTHY AND FREE OF FUNGAL AND BACTERIAL DISCOLORATION AND DEFORMITIES. PLANTS APPEARING TO BE UNHEALTHY WILL BE SUBJECT TO REJECTION BY THE ENGINEER.
- PLANTINGS TO BE PLACED IN WET OR SATURATED SOILS SHALL BE PRE-CONDITIONED BY BEING HELD UNDER SIMILAR CONDITIONS AT THE NURSERY PRIOR TO SHIPMENT TO THE SITE.
- PRIOR TO AQUATIC PLANTING, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST SEVEN DAYS IN ADVANCE TO ASSIST IN LAYOUT OF AQUATIC PLANTS.
- ALL AQUATIC PLANTING SHALL BE COMPLETED BETWEEN MAY 15 AND JUNE 30.
- AQUATIC PLANTS SHALL BE PLANTED FIRMLY IN THE MUD AT THE APPROPRIATE WATER DEPTH FOR EACH SPECIES. TUBERS SHALL BE WEIGHTED AND PLANTED IN THE UPPER THREE INCHES OF SOIL. THE CONTRACTOR SHALL INSPECT THE PLANTING AT LEAST EVERY OTHER DAY DURING THE FIRST TEN DAYS AFTER COMPLETION. ANY AQUATIC PLANTS THAT BECOME DISLODGED OR FLOAT SHALL BE IMMEDIATELY RE-PLANTED.

SUGGESTED SEQUENCE OF CONSTRUCTION

- MOBILIZE ALL EQUIPMENT AND MATERIALS TO THE SITE.
- SET UP AND MAINTAIN ALL EROSION CONTROL MEASURES
- REMOVE ALL ITEMS INDICATED ON THE REMOVAL PLAN.
- CONSTRUCT ALL UPLAND FEATURES DURING THE SUMMER/FALL GROWING SEASON, INCLUDING ANY LANDSCAPING THAT TIME WILL ALLOW.
- CONSTRUCT ALL IN-WATER STRUCTURES DURING THE WINTER MONTHS (OCTOBER 1 - MARCH 31).
- CLEAN UP THE SITE, RESTORE ANY DAMAGE, AND DEMOBILIZE.



ARCHITECTS ENGINEERS PLANNERS

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OHM-ADVISORS.COM

REVISIONS

VERT DATUM

IGLD '85

HORIZ DATUM

NO EUB

SCALE

1" = 1'-0"

CITY/VILLAGE/TOWNSHIP

Chesterfield Twp

COUNTY

Macomb

ROAD

118B

PROJ LMSR

118B-118B

ENG

DATE

SHEET

CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION

NOTES

3

OF 14

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DRAWING PATH: P:\0201_060005519010_Brandenburg_Park_Shoreline_Drawings\CivilPlans_Const\19010501R.dwg Jun 14, 2019 - 10:47am

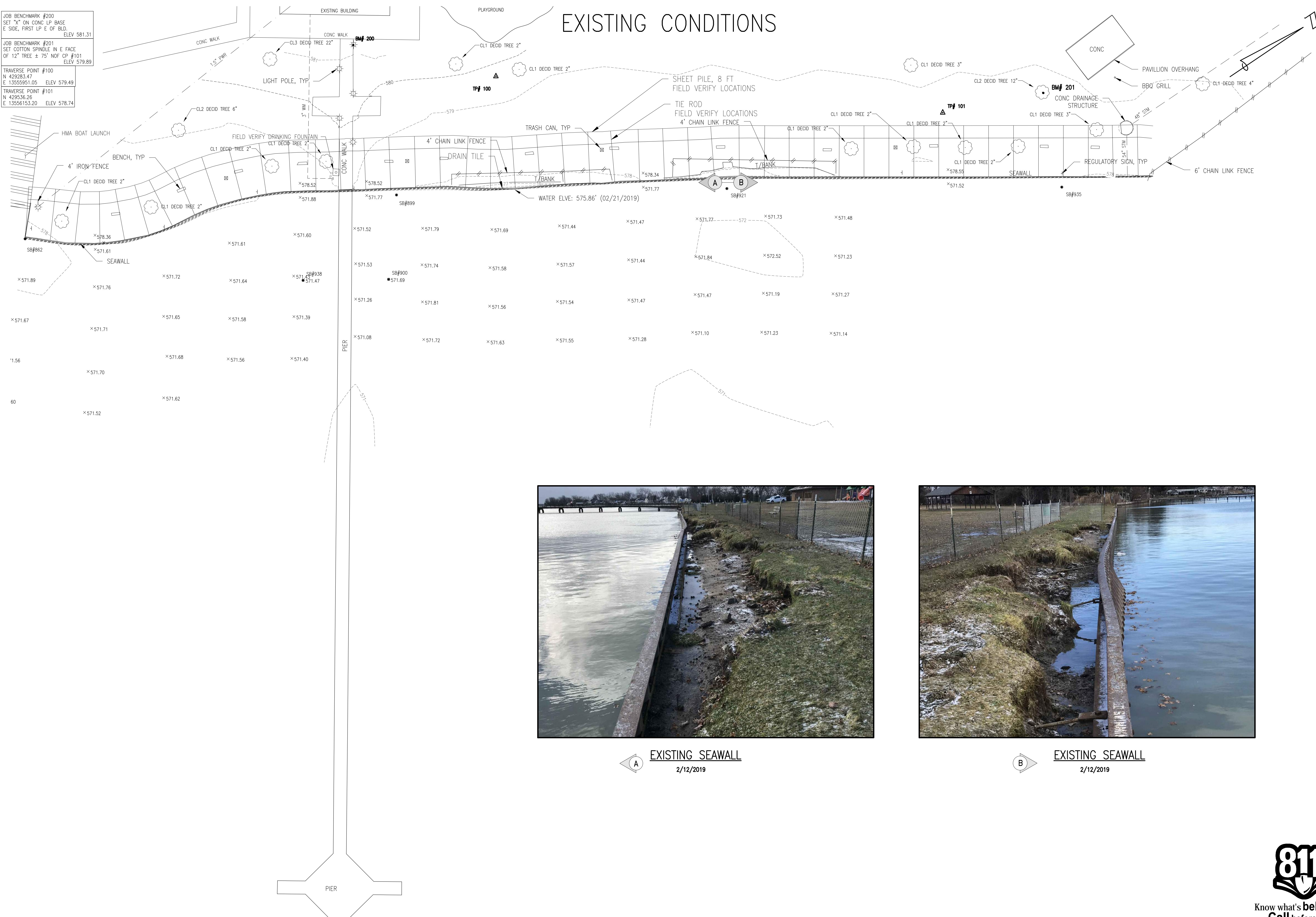
JOB BENCHMARK #200
SET "X" ON CONC LP BASE
E SIDE, FIRST LP E OF BLD.
ELEV 581.31

JOB BENCHMARK #201
SET COTTON SPINDLE IN E FACE
OF 12" TREE ± 75' NOF CP #101
ELEV 579.89

TRAVERSE POINT #100
N 429283.47
E 13555951.05 ELEV 579.49

TRAVERSE POINT #101
N 429536.26
E 13556153.20 ELEV 578.74

EXISTING CONDITIONS



A EXISTING SEAWALL
2/12/2019



B EXISTING SEAWALL
2/12/2019

OHM
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REVISIONS

DATE PROJECT NUMBER ENG PROJ/DRWR COUNTY CITY/TOWNSHIP SCALE HORIZONTAL VERT DATUM
02/27/2019 05519010 BRANDENBURG MACOMB CHESTERFIELD TWP 1"=50' NAD 83 NAD 83

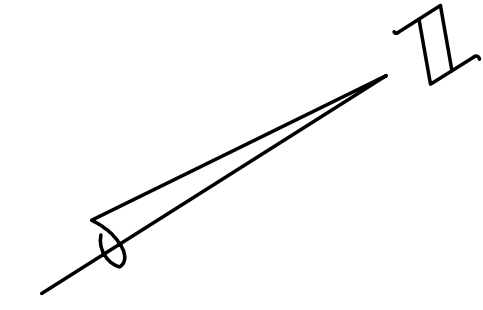
CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
EXISTING CONDITIONS



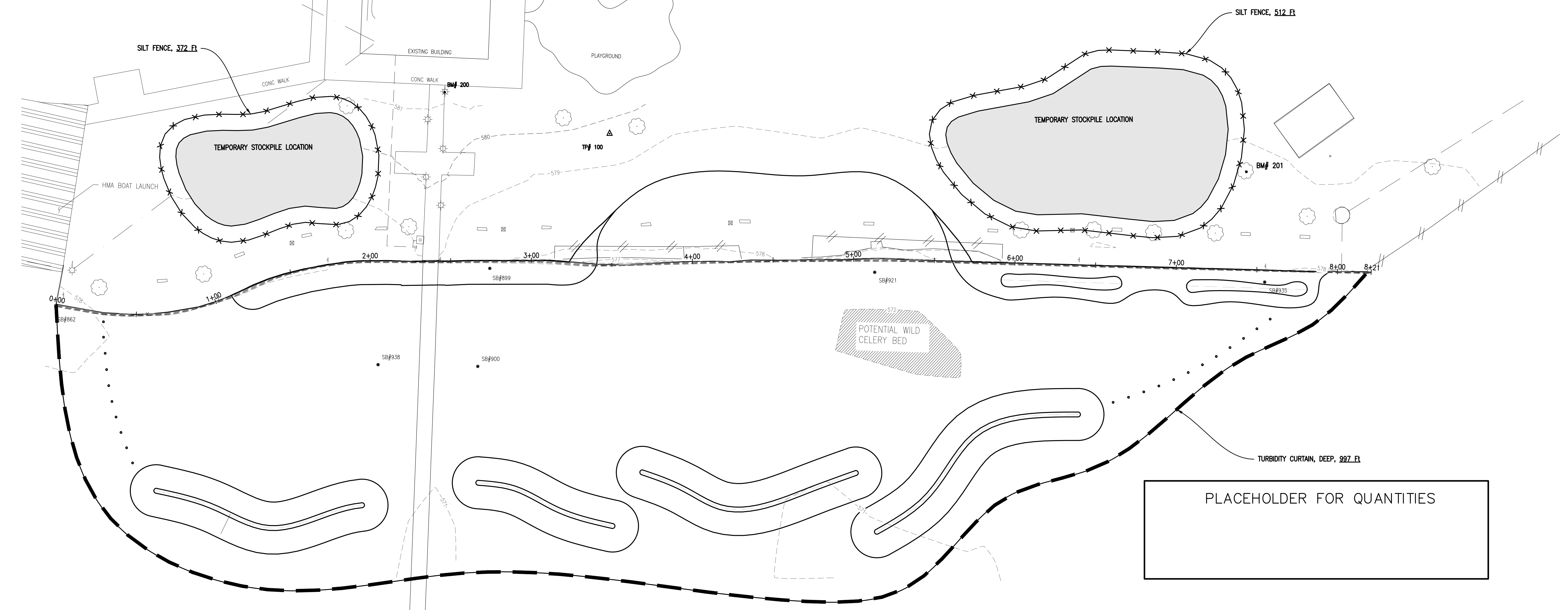
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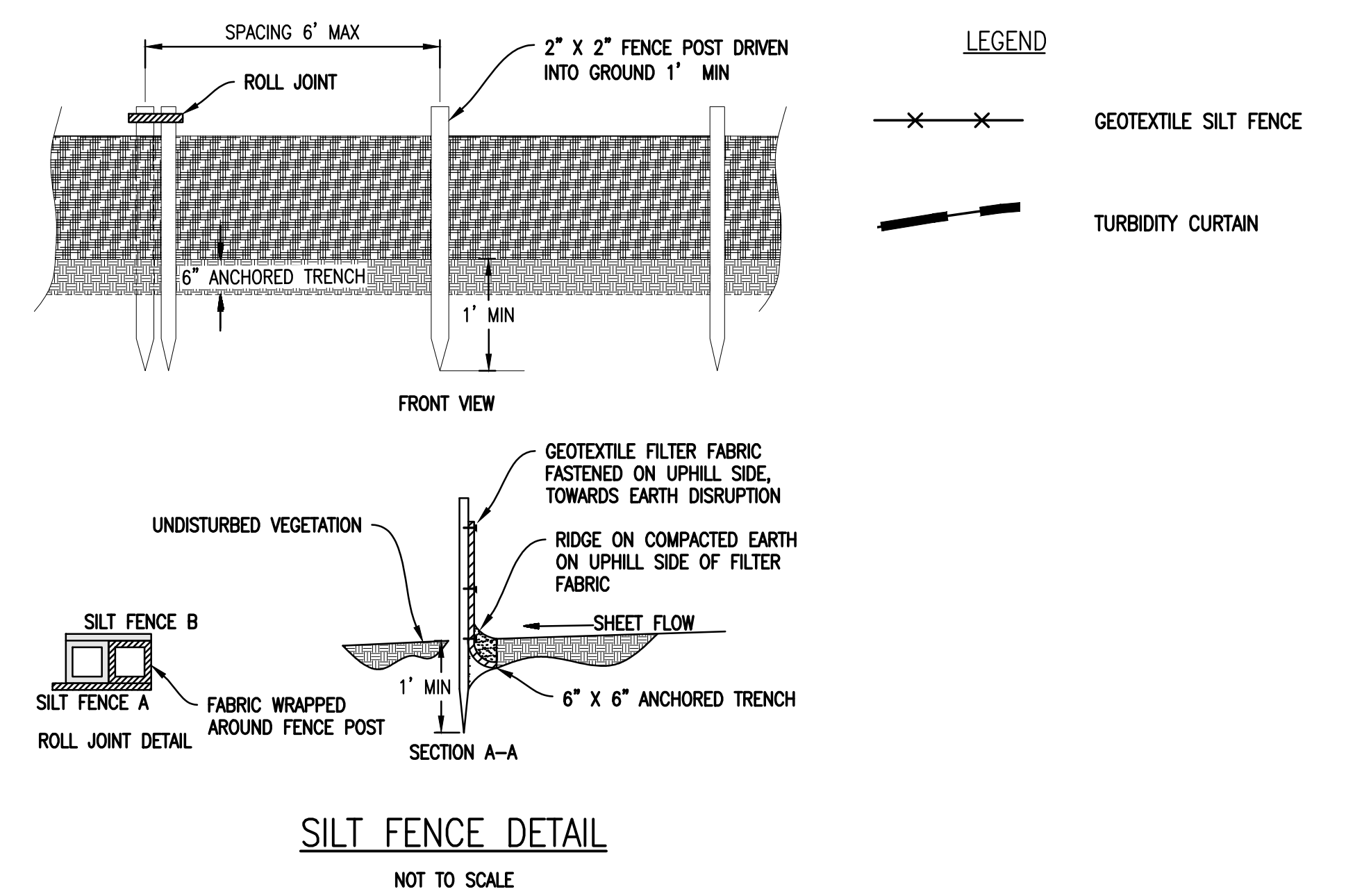
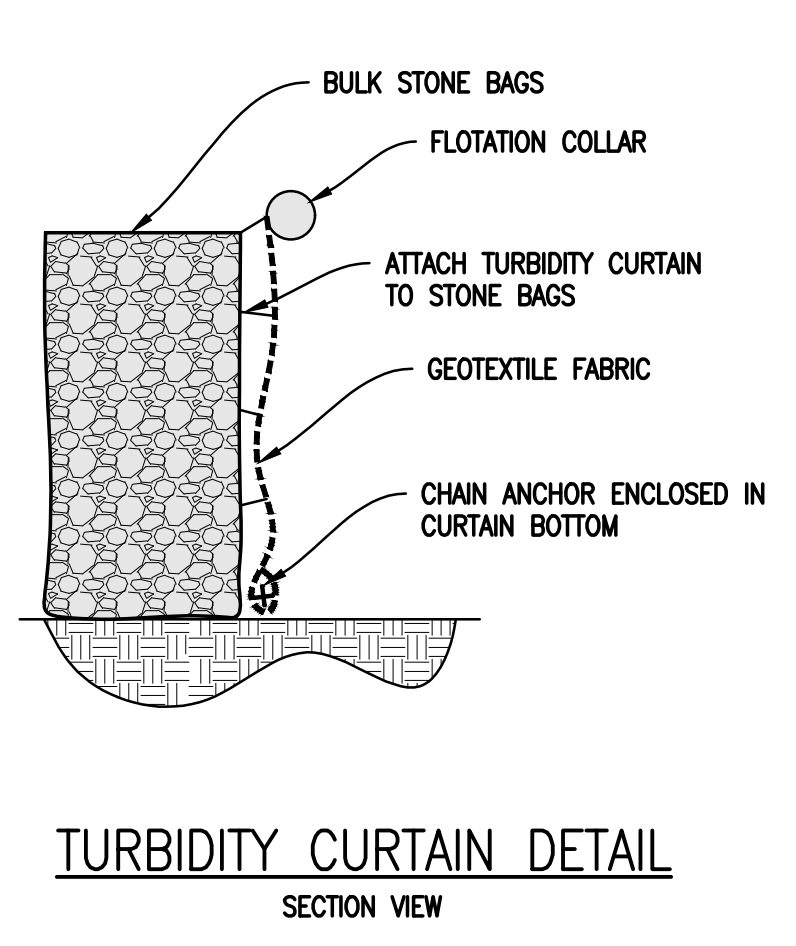
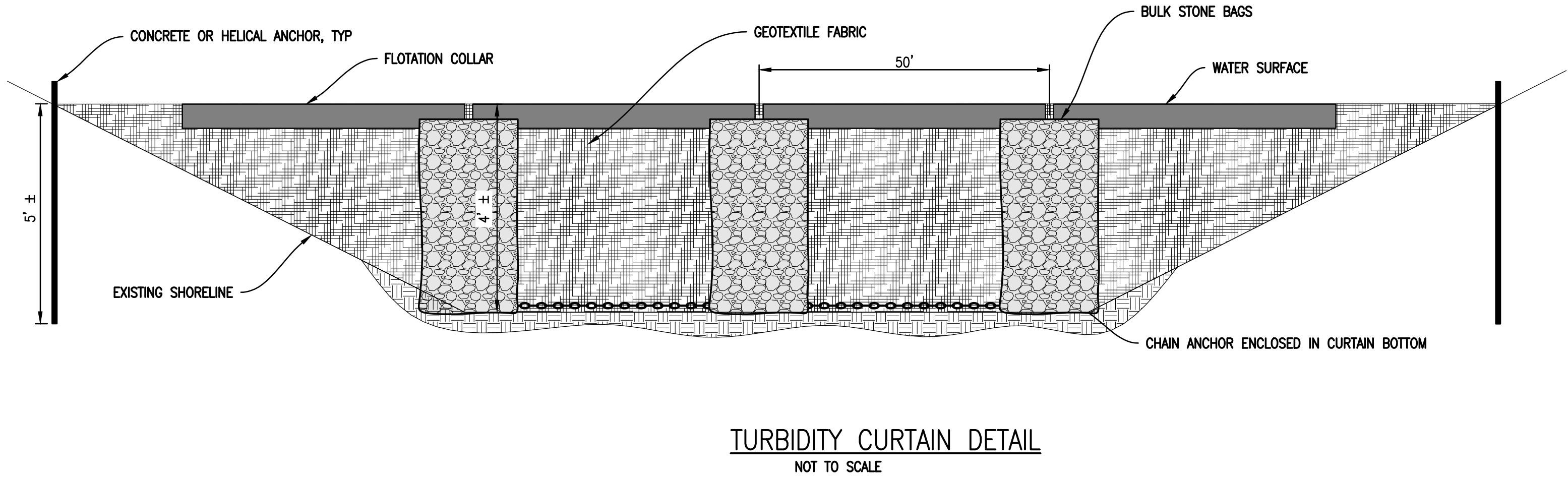
SOIL EROSION CONTROL PLAN



JOB BENCHMARK #200	
SET "X" ON CONC LP BASE	ELEV 581.31
E SIDE, FIRST LP E OF BLD.	
JOB BENCHMARK #201	
SET COTTON SPINDLE IN E FACE	
OF 12" TREE ± 75' NOF CP #101	ELEV 579.89
TRAVERSE POINT #100	
N 429283.47	ELEV 579.49
E 1355951.05	
TRAVERSE POINT #101	
N 429353.26	ELEV 578.74
E 13556153.20	



PLACEHOLDER FOR QUANTITIES



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REVISIONS

HORIZ DATUM	VERT DATUM
NAD 83	IGLD 85

CITY/VILLAGE/TOWNSHIP: Chesterfield Twp
COUNTY: Marion
CADD: MFB
PROJ INGR: Vetsko Notes
DATE: 0325-14-010
PROJ NUMBER: 0325-14-010
ENG: Vetsko
CADD: MFB
COUNTY: Marion
CITY/VILLAGE/TOWNSHIP: Chesterfield Twp
SCALE: 1"=50'
VERT DATUM: IGLD 85
HORIZ DATUM: NAD 83

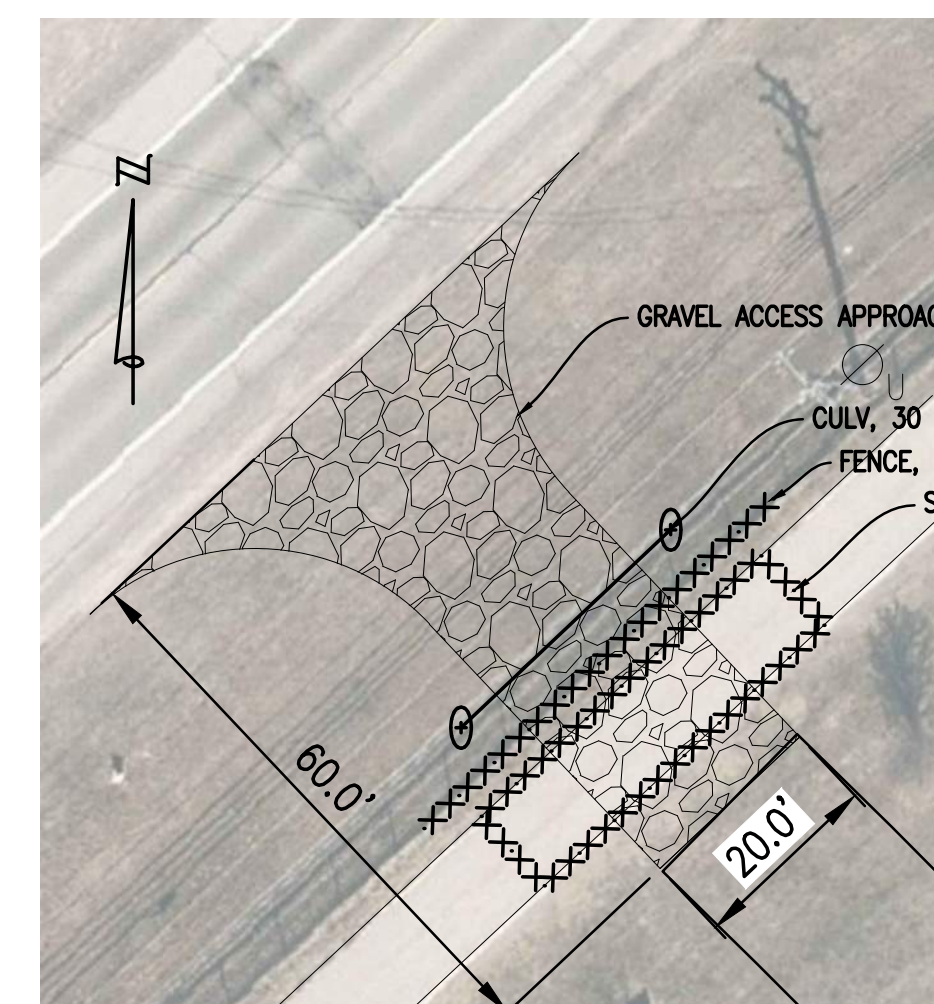
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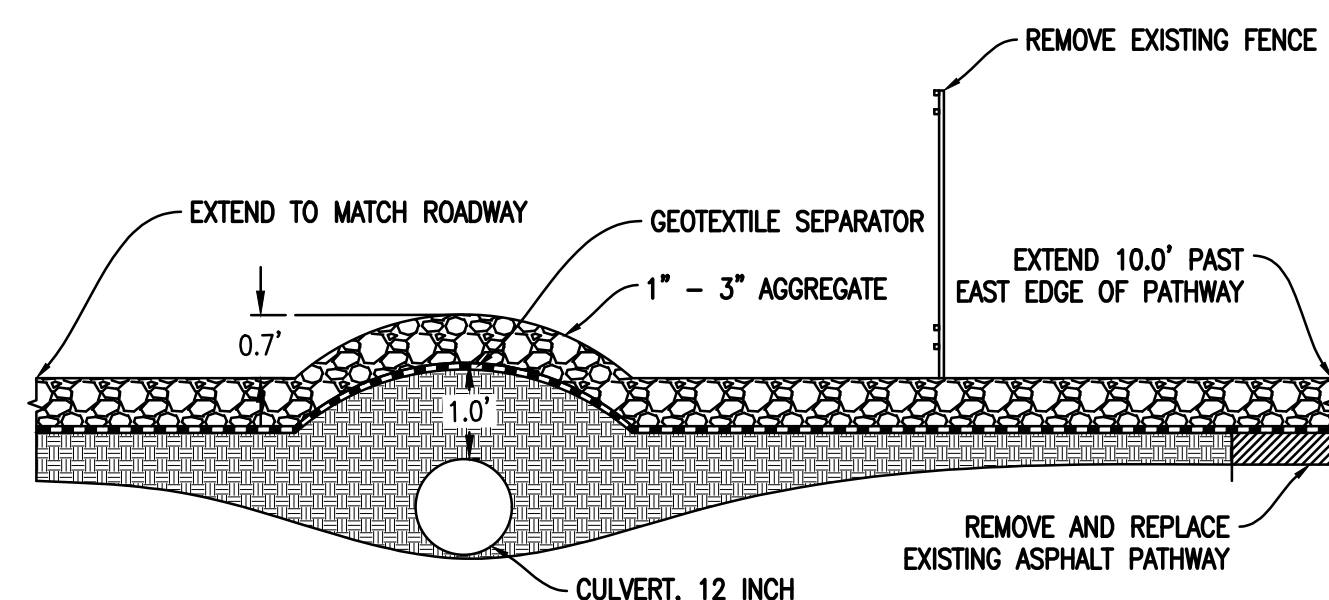
SOIL EROSION CONTROL PLAN



ACCESS PLAN
NOT TO SCALE



GRAVEL ACCESS APPROACH
PLAN



GRAVEL ACCESS APPROACH
PROFILE

NOTE:
TEMPORARY ACCESS ROAD SHALL BE CONSTRUCTED IN A METHOD THAT CAN BE INSTALLED, UTILIZED, AND REMOVED WITH MINIMAL IMPACT TO THE PARK. OPTIONS INCLUDE GEOTEXTILE WRAPPED AGGREGATE, CRANE-MATS, OR DURA-MATS.

TEMPORARY EROSION CONTROLS MAINTENANCE PLAN

MEASURE	MAINTENANCE SCHEDULE
TURBIDITY CURTAIN	INSTALL AT START OF PROJECT PER PLAN. CURTAIN SHALL BE INSPECTED DAILY AND SHALL CONFORM TO THE DETAIL ON SHEET #5. DAMAGED OR DISPLACED SECTIONS SHALL BE RESTORED IMMEDIATELY. SEDIMENT SHALL BE REMOVED AT THE END OF CONSTRUCTION.
SILT FENCE	INSTALL AT START OF PROJECT PER PLAN. FENCE SHALL BE INSPECTED DAILY AND SHALL CONFORM TO THE DETAIL ON THIS SHEET. DAMAGED OR DISPLACED SILT FENCE SHALL BE RESTORED IMMEDIATELY. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION IS EQUAL TO 1/2 THE HEIGHT OF THE FENCE.
STREET SWEEPING	STREETS SHALL BE SWEEPED AS DIRECTED BY THE ENGINEER OR TOWNSHIP PERSONNEL.
DUST CONTROL	WATER SHALL BE APPLIED TO EXPOSED AREAS BY THE CONTRACTOR IN THE EVENT OF EXCESSIVE AIRBORNE DUST. DUST CONTROL SHALL BE APPLIED AS DIRECTED BY THE ENGINEER OR TOWNSHIP PERSONNEL.
STOCK PILE AREAS	PLACE STOCKPILES AND OTHER SPOIL PILES AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON-SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, COVER THE PILE WITH WATER REPELLENT MATERIAL TO PREVENT EROSION AND INSTALL SILT FENCING AROUND THE BASE OF THE PILE TO PREVENT TRANSPORT OF SEDIMENT TO THE STORM WATER SYSTEM, OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SITE. CONTROL MEASURES TO GUARD AGAINST WIND EROSION MUST ALSO BE EMPLOYED, SUCH AS WETTING OR COVERING THE STOCKPILES. KEEP AS FEW STOCKPILES AS POSSIBLE DURING THE COURSE OF THE PROJECT.

PROJECT SPECIFIC EROSION CONTROL NOTES

1. THE PROJECT IS TO BE CONSTRUCTED IN BRANDENBURG PARK LOCATED IN SECTION 23, T.3N, R.14E, OF CHESTERFIELD TOWNSHIP, MICHIGAN.
2. ALL PROTECTIVE FENCING AND EROSION CONTROL MEASURES ARE TO BE INSTALLED ACCORDING TO PLANS AND SPECIFICATIONS CONTAINED HEREIN.
3. THE IMPERVIOUS AREA WILL NOT BE ALTERED, AS EXISTING PAVED SURFACES WILL BE RESTORED WITH PAVEMENT, AND EXISTING VEGETATIVE SURFACES WILL BE RESTORED WITH GRASS AND NATIVE SPECIES.
4. ANY SOILS TRACKED ONTO STREETS MUST BE REMOVED IMMEDIATELY FOLLOWING EACH TRACKING OCCURRENCE.

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REVISIONS

CITY/VILLAGE/TOWNSHIP: Chesterfield Twp
COUNTY: Monroe
SCALE: H: 1"=40' V: 1"=4'
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: IGLD 85
PROJECT NUMBER: 0555-19-0010
DATE: 05/15/2019
PROJ. MGR: Valeria Novais
CADD: WFB
DRAFTER: Valeria Novais

CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
SOIL EROSION CONTROL PLAN

Know what's below.
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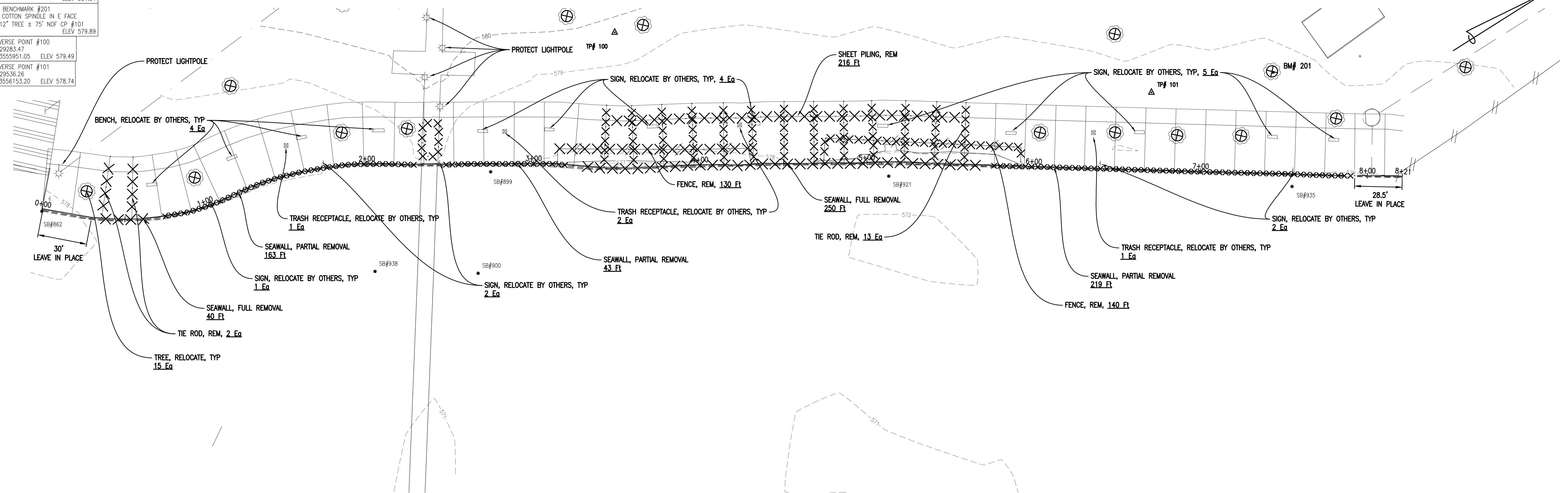
REMOVAL PLAN

JOB BENCHMARK #200
 SET "X" ON CONC LP BASE
 E SIDE, FIRST LP E. OF BLD.
 ELEV 581.31

JOB BENCHMARK #201
 SET COTTON SPINDLE IN E FACE
 OF 12" TREE ± 75' NOF CP #101
 ELEV 579.89

TRAVERSE POINT #100
 N 429283.47
 E 13555951.05 ELEV 579.49

TRAVERSE POINT #101
 N 429536.26
 E 13556153.20 ELEV 578.74



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REVISIONS:

DATE: 03-25-2015
 PROJ NUMBER: 6355-16-010
 ENG: Valeria Novais
 PROJ MGR: Valeria Novais
 CADD: MRS
 COUNTY: Macomb
 CITY/VILLAGE/TOWNSHIP: Chesterfield Twp
 SCALE: H: 1"=40' V: 1"=4'
 HORIZ DATUM: NAD 83
 VERT DATUM: IGLD 85

CHESTERFIELD TOWNSHIP
 BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
 REMOVAL AND ACCESS PLAN

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CONSTRUCTION PLAN



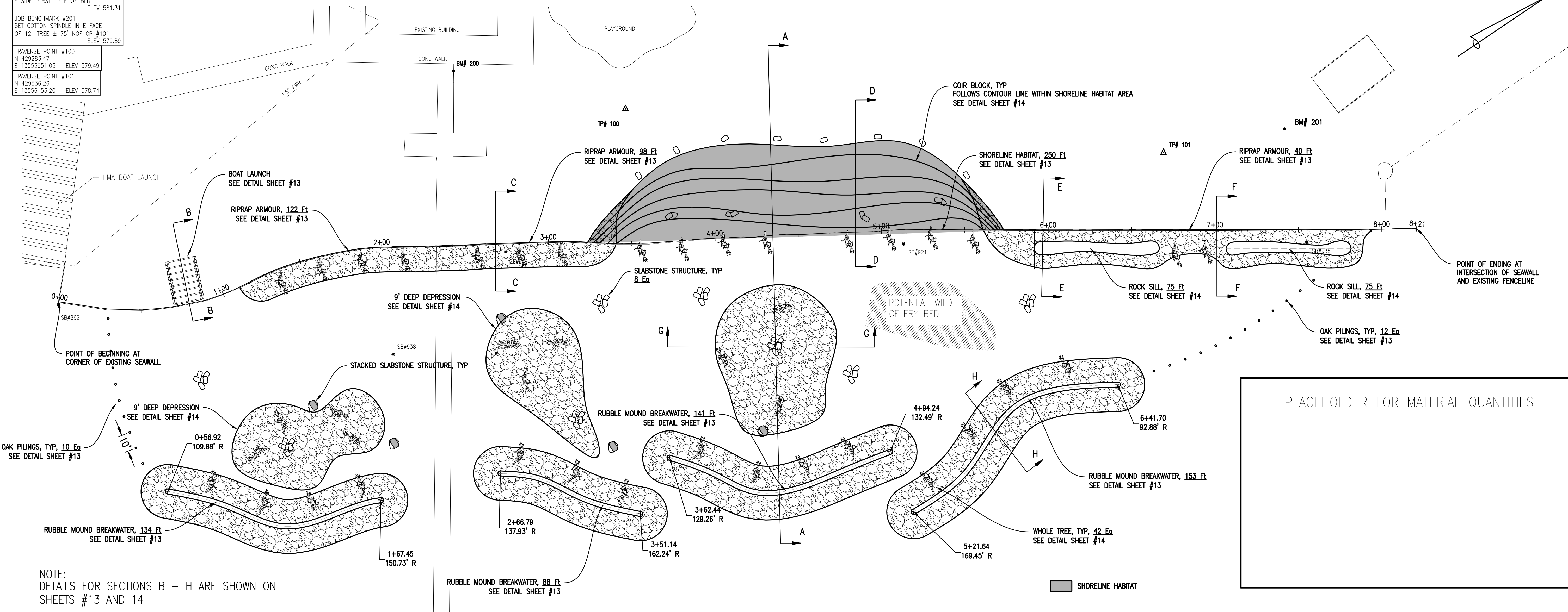
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JOB BENCHMARK #200
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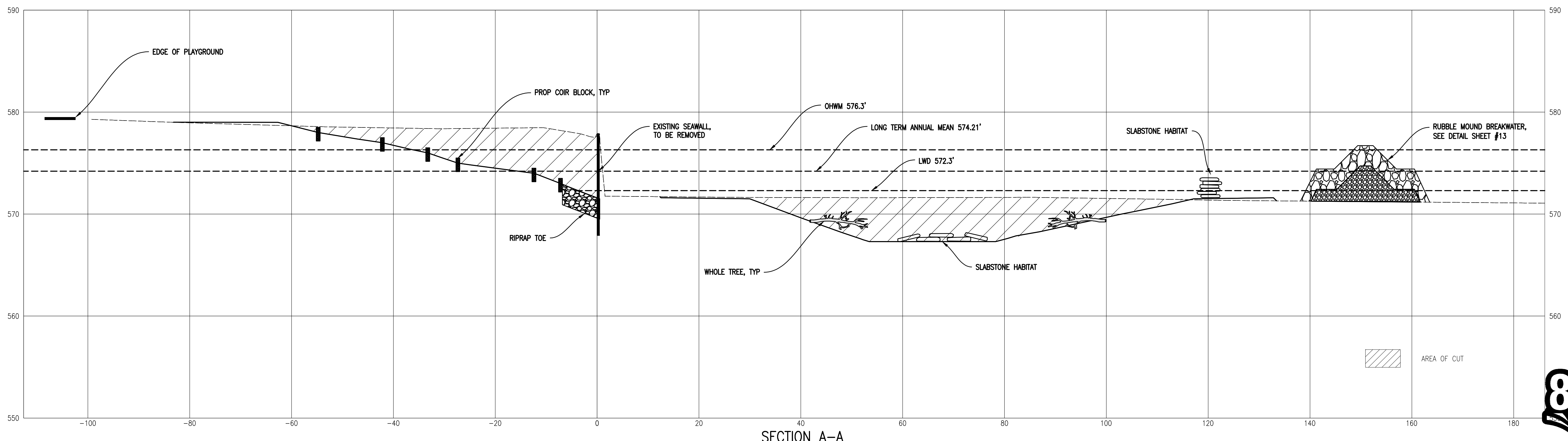
TRAVERSE POINT #100
 N 429283.47
 E 13555951.05 ELEV 579.49

TRAVERSE POINT #101
 N 429336.26
 E 13556153.20 ELEV 578.74



PLACEHOLDER FOR MATERIAL QUANTITIES

NOTE:
 DETAILS FOR SECTIONS B - H ARE SHOWN ON SHEETS #13 AND 14



Know what's below.
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REVISIONS

NO.	DATE	DESCRIPTION

CITY/VILLAGE/TOWNSHIP
 CHESTERFIELD TWP

COUNTY
 MACCORM

CADD
 MPB

PROJ. INGR
 Vukob Novak

ENG

DATE
 08/12/19

PROJ. NUMBER
 085519013

CHESTERFIELD TOWNSHIP
 BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
 CONSTRUCTION PLAN

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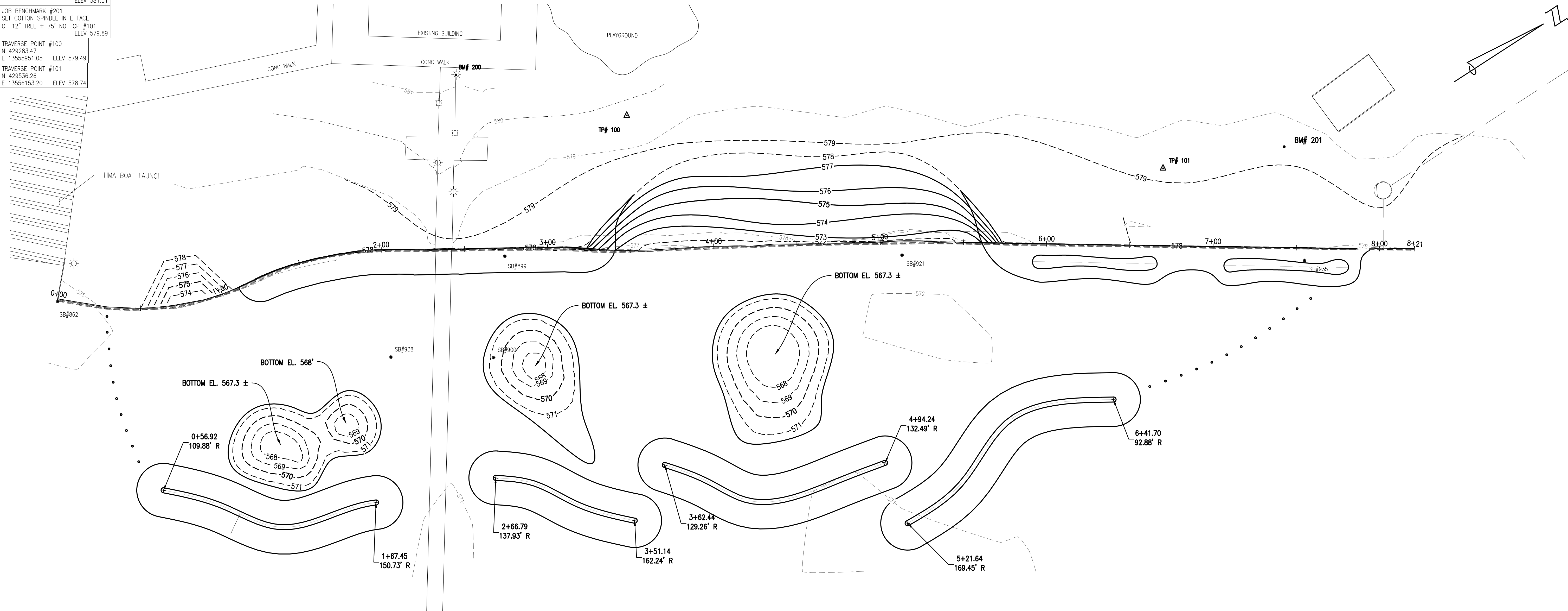
GRADING PLAN

JOB BENCHMARK #200
SET "X" ON CONC LP BASE
E SIDE, FIRST LP E OF BLD
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E 13556153.20 ELEV 578.74



PLACEHOLDER FOR MATERIAL QUANTITIES



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REVISIONS

DATE	PROJ NUMBER	ENG	PROJ LEADER	CADD	COUNTY	CITY/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
08/27/2010	1000000000		Michael Novak	MPS	Macomb	Chesterfield Twp	H: 1"=50'	NAD 83	IGLD 85

CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
GRADING PLAN

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PLANT IMAGES: BELOW THE WATER LEVEL



WATER PLANTAIN



YELLOW POND LILY



STIFF ARROWHEAD



THREE SQUARE BULRUSH



WILD CELERY

MATERIAL IMAGES:



FLAGSTONE PATHWAY



LEDGESTONE - NATURAL STAIRS

PLANT IMAGES: BETWEEN WATER LEVEL AND ORDINARY HIGH WATER MARK (OHWM)



LAKE SEDGE



SWAMP LOOSTRIFE



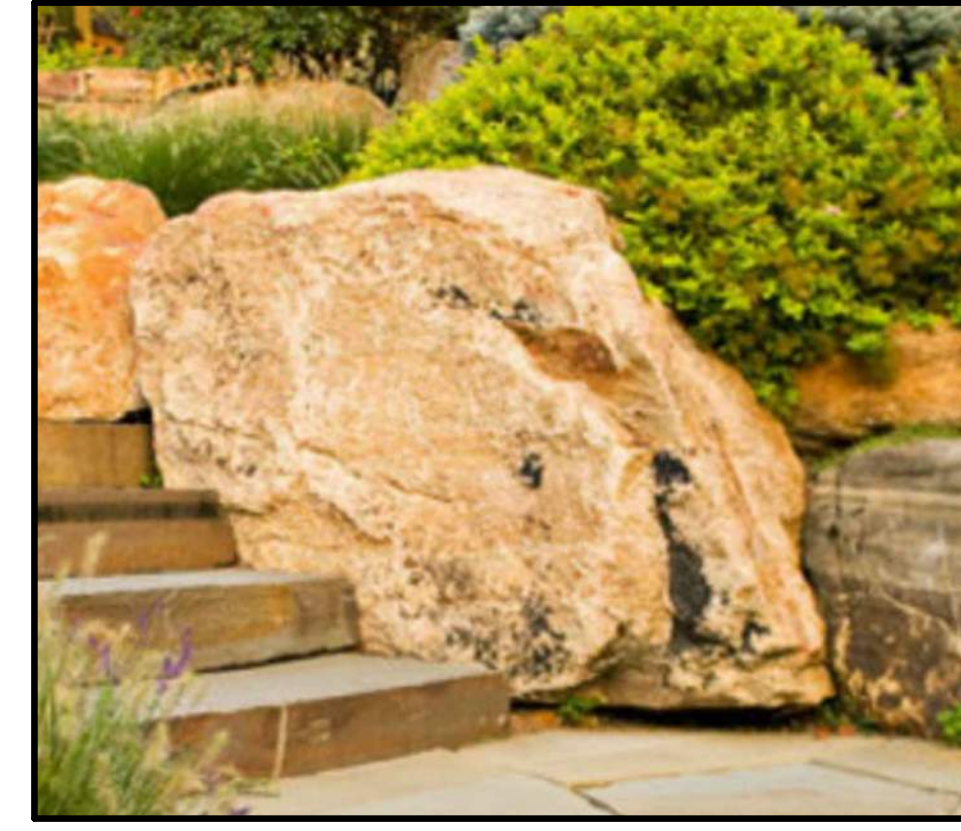
SWEET GALE



PICKERLEWEED



CATTAIL



DECORATIVE BOULDERS

PLANT IMAGES: BETWEEN THE OHWM TO THE HIGH WATER MARK



COMMON MILKWEED



FOX SEDGE



JOE PYE WEED



TORREY RUSH



VIRGINIA MOUNTAINMINT

PLANT IMAGES: UPLAND PLANTS



BUTTERFLY WEED



NEW JERSEY TEA



BLACK EYED SUSAN



OLD FIELD GOLDENROD



PRAIRIE DROPSEED



LOWBUSH BLUEBERRY

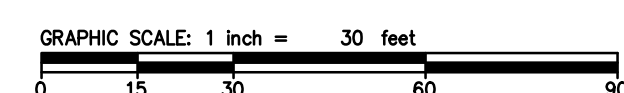
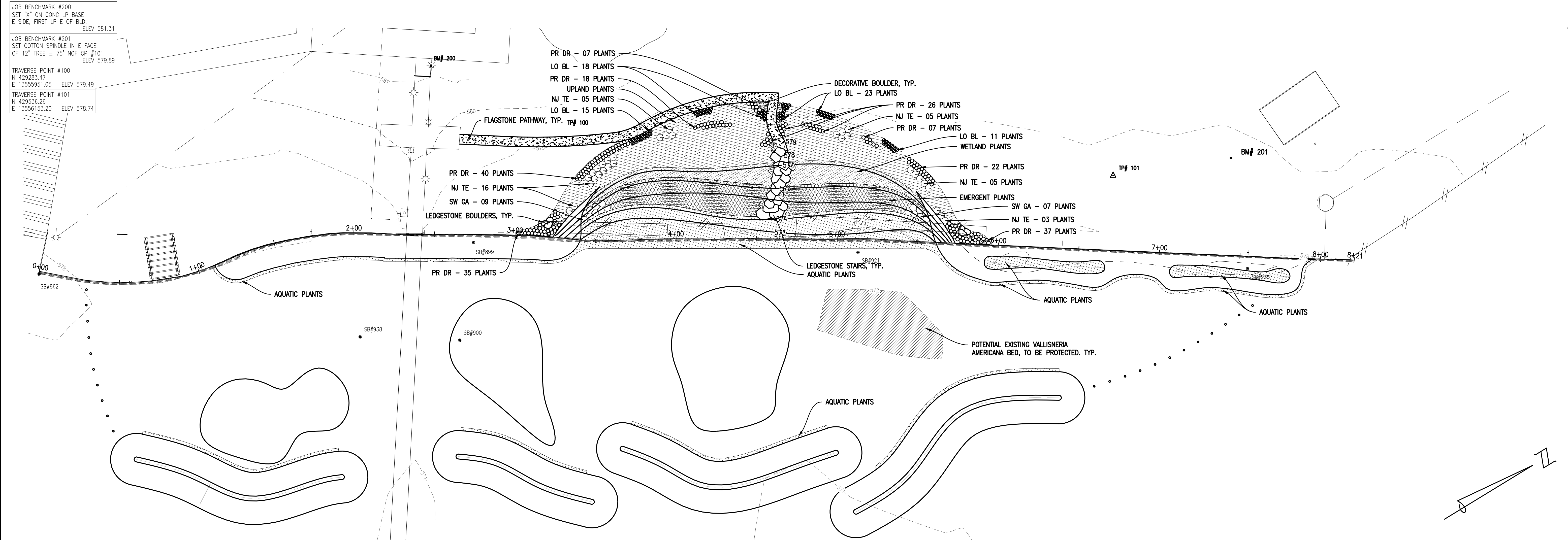
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REVISIONS

CHESTERFIELD TOWNSHIP
 BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
 PLANT AND MATERIAL IMAGES

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BRANDENBURG PLANT LIST
 PLANT LIST: LAKE BOTTOM TO ANNUAL AVERAGE LONG TERM MEAN

CODE	COMMON NAME	LATIN NAME	SIZE	COND.	SPACING	QUANTITY
WA PL	WATER PLANTAIN	<i>Alisma plantago aquatica</i>	QUART	CONT.	6' O.C.	75
YE PL	YELLOW POND LILY	<i>Nuphar advena</i>	QUART	CONT.	6' O.C.	75
ST AR	STIFF ARROWHEAD	<i>Sagittaria rigida</i>	QUART	CONT.	6' O.C.	75
ST AR	THREE SQUARE BULRUSH	<i>Schoenoplectus pungens</i>	PLUG	CONT.	6' O.C.	75
WI CE	WILD CELERY	<i>Vallisneria americana</i>	PLUG	CONT.	6' O.C.	75

BRANDENBURG PLANT LIST
 PLANT LIST: BETWEEN ANNUAL AVERAGE LONG TERM MEAN TO OHWM

CODE	COMMON NAME	LATIN NAME	SIZE	COND.	SPACING	QUANTITY
LA SE	LAKE SEDGE	<i>Carex aquatilis</i>	PLUG	CONT.	2' O.C.	218
SW LO	SWAMP LOOSETRIFE	<i>Decodon verticillatus</i>	PLUG	CONT.	2' O.C.	218
SW GA	SWEET GALE	<i>Myrica gale</i>	24"	LIVE STAKE	4' O.C.	16
PI WE	PICKERELWEED	<i>Pontederia cordata</i>	PLUG	CONT.	2' O.C.	218
CA TA	CATTAIL	<i>Typha latifolia</i>	PLUG	CONT.	2' O.C.	218

BRANDENBURG PLANT LIST
 PLANT LIST: OHWM TO 100-YEAR HIGH WATER MARK

CODE	COMMON NAME	LATIN NAME	SIZE	COND.	SPACING	QUANTITY
CO MI	COMMON MILKWEED	<i>Asclepias syriaca</i>	PLUG	CONT.	2' O.C.	101
FO SE	FOX SEDGE	<i>Carex vulpinoidea</i>	PLUG	CONT.	2' O.C.	101
JO WE	JOE PYE WEED	<i>Eupatorium maculatum</i>	PLUG	CONT.	2' O.C.	101
TO RU	TORREY RUSH	<i>Juncus torreyi</i>	PLUG	CONT.	2' O.C.	101
VI MO	VIRGINIA MOUNTAINMINT	<i>Pycnanthemum virginianum</i>	PLUG	CONT.	2' O.C.	101

BRANDENBURG PLANT LIST
 PLANT LIST: ABOVE 100-YEAR HIGH WATER MARK

CODE	COMMON NAME	LATIN NAME	SIZE	COND.	SPACING	QUANTITY
BU WE	BUTTERFLY WEED	<i>Asclepias tuberosa</i>	PLUG	CONT.	2' O.C.	508
NJ TE	NEW JERSEY TEA	<i>Ceanothus americanus</i>	#1	CONT.	AS PER PLAN	34
BL ES	BLACK EYED SUSAN	<i>Rudbeckia hirta</i>	#1	CONT.	2' O.C.	508
OL FG	OLD FIELD GOLDENROD	<i>Solidago nemoralis</i>	PLUG	CONT.	2' O.C.	508
PR DR	PRAIRIE DROPSEED	<i>Sporobolus heterolepis</i>	#1	CONT.	AS PER PLAN	192
LO BL	LOWBUSH BLUEBERRY	<i>Vaccinium angustifolium</i>	#1	CONT.	AS PER PLAN	67

BRANDENBURG PLANT LIST
 PLANT LIST: WET-MESIC PRAIRIE SEED MIX

CODE	NAME	CONDITION	RATE	QTY
WM PS	WET-MESIC PRAIRIE SEED MIX	PLS	32.25 PLS/ACRE	.25 ACRES

BRANDENBURG MATERIAL LIST

ITEM	FINISH	NOTES
BOULDER	Natural Boulders	Heights vary between 3'-4'
FLAGSTONE	Irregular Shaped Pieces	Dry laid with crushed aggregate between stones
LEDGESTONE	Irregular Shaped Pieces	6" thickness, and approx 4-5' wide

NATIVE CONNECTIONS
 WET-MESIC PRAIRIE SEED MIX

This mix is patterned after natural prairie communities with mesic to wet soils and full sun. Species in this mix can tolerate a wide range of conditions including seasonal saturation as well as dry periods during the summer months. Not intended for long-term flooding or fully saturated areas, this mix will also do well in most stormwater detention basins or can be planted just upslope from wetland areas.

Total Seeding Rate: 32.25 lbs per acre
 4.75 lbs grasses + 2.5 lbs forbs + 25 lbs nurse crop
 66 native seeds per sq ft

Call, email or visit our website for pricing.

Grasses	PLS Oz/acre	Seeds/sq ft
<i>Andropogon gerardii</i>	20.00	4.59
<i>Carex bebbii</i>	0.50	0.39
<i>Carex vulpinoidea</i>	0.50	1.15
<i>Elymus virginicus</i>	24.00	2.31
<i>Panicum virgatum</i>	9.90	3.18
<i>Scirpus cyparissus</i>	0.10	3.90
<i>Sorghastrum nutans</i>	20.00	5.51
<i>Spartina pectinata</i>	1.00	0.15
Total Grasses	76.00	21.19

Forbs	PLS Oz/acre	Seeds/sq ft
<i>Actinomeris alternifolia (Verbesina a.)</i>	0.60	0.12
<i>Allium cernuum</i>	1.00	0.17
<i>Angelica atropurpurea</i>	1.00	0.12
<i>Asclepias incarnata</i>	0.50	0.06
<i>Aster novae-angliae</i>	0.50	0.76
<i>Cassia hebecarpa</i>	5.50	0.18
<i>Coreopsis tripteris</i>	1.00	0.32
<i>Desmodium canadense</i>	0.50	0.06
<i>Eupatorium purpureum</i>	0.50	0.46
<i>Helianthus annuus</i>	0.50	1.49
<i>Helipopsis helianthoides</i>	8.00	1.16
<i>Heracleum maximum (H. lanatum)</i>	1.20	0.07
<i>Hypericum pyramidatum</i>	1.50	6.54
<i>Listris spicata</i>	0.50	0.13
<i>Lobelia siphilitica</i>	0.50	5.74
<i>Monarda fistulosa</i>	1.50	2.41
<i>Penstemon digitalis</i>	2.50	7.46
<i>Physostegia virginiana</i>	0.50	0.13
<i>Pycnanthemum virginianum</i>	0.20	1.01
<i>Ratibida pinnata</i>	1.50	1.03
<i>Rudbeckia hirta</i>	3.50	7.39
<i>Rudbeckia triloba</i>	2.50	1.95
<i>Scrophularia lanceolata</i>	0.50	2.12
<i>Silphium laciniatum</i>	1.50	0.03
<i>Solidago rigida</i>	0.50	1.07
<i>Verbena hastata</i>	1.00	2.13
<i>Zizia aurea</i>	1.00	0.25
Total Forbs	40.00	44.40

Temporary Grass Cover	Oz/acre	Seeds/sq ft
<i>Lolium multiflorum</i>	80.00	24.79
<i>Avena sativa</i>	320.00	7.35

LEGEND

- (AQUATIC PLANTS) PLANTS AT LAKE BOTTOM TO ANNUAL AVERAGE LONG TERM MEAN ELEVATION
- (EMERGENT PLANTS) PLANTS BETWEEN ANNUAL AVERAGE LONG TERM MEAN TO ORDINARY HIGH WATER MARK (OHWM)
- (WETLAND PLANTS) PLANTS BETWEEN OHWM TO 100-YEAR HIGH WATER MARK
- (UPLAND PLANTS) ABOVE 100-YEAR HIGH WATER MARK
- FLAGSTONE PATHWAY
- LEDGESTONE

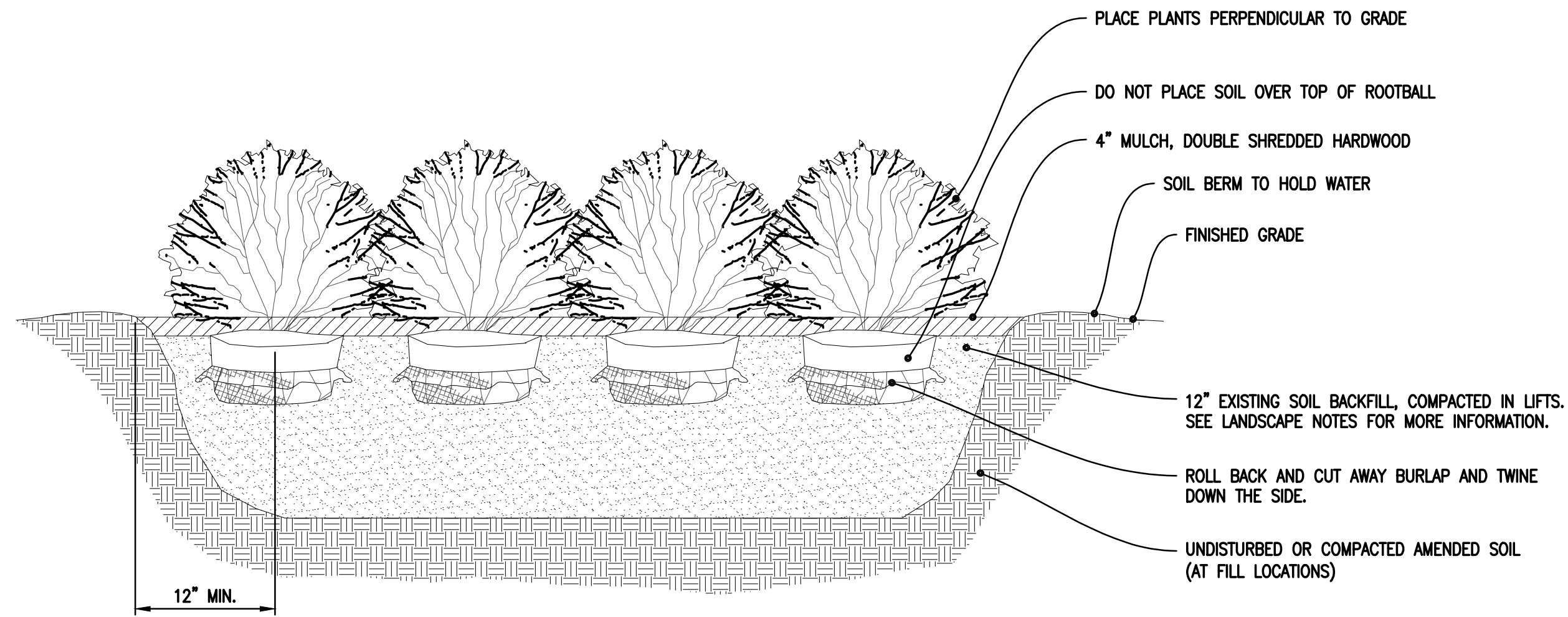
NOTE:
 FOR PLANTING AND MATERIAL DETAILS, SEE SHEET 12.
 PLANT LIST QUANTITIES REPRESENT PROJECT TOTALS.



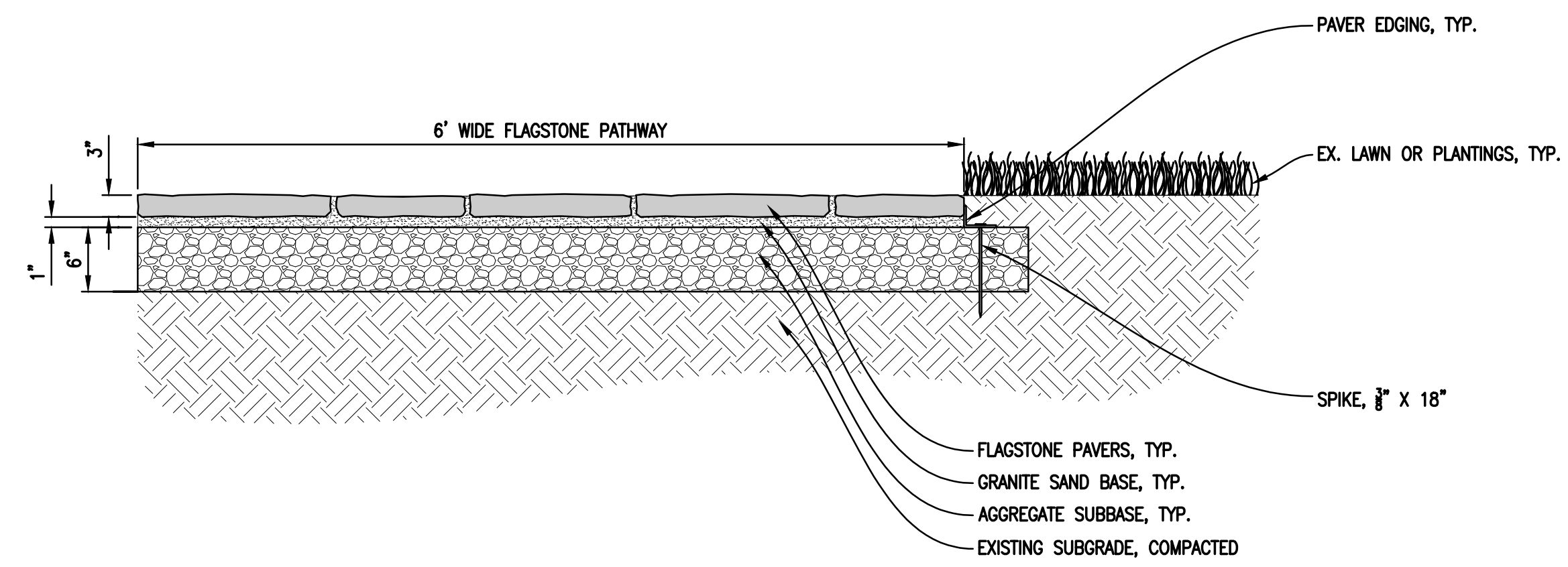
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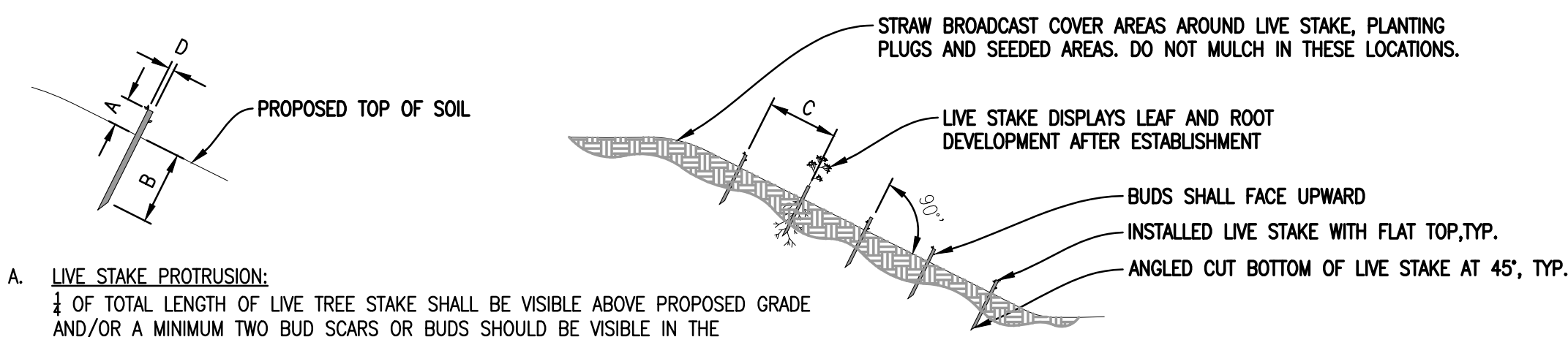
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SHRUB PLANTING DETAIL
NOT TO SCALE

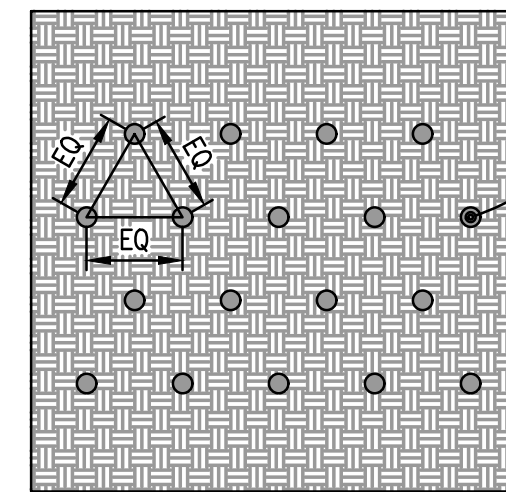


FLAGSTONE PATHWAY
NOT TO SCALE



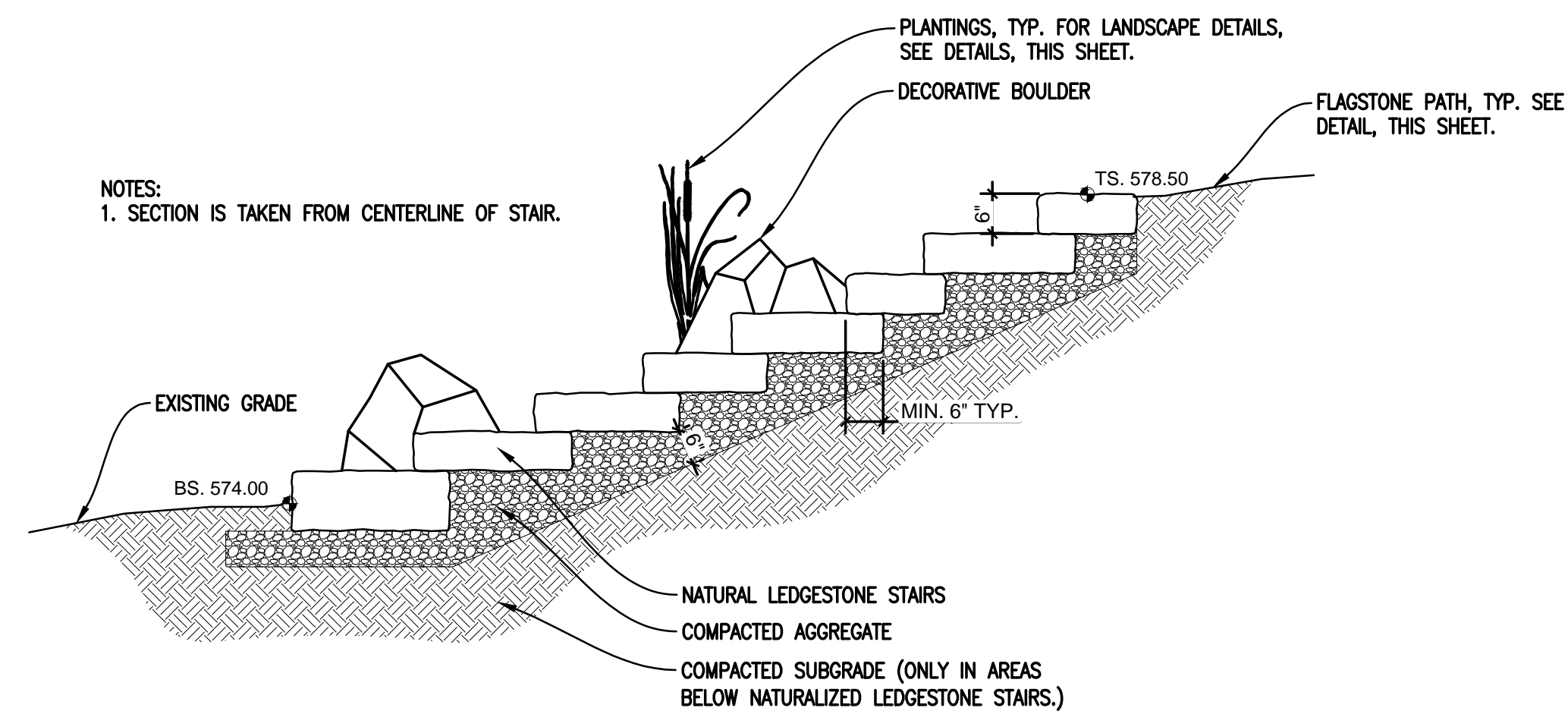
- A. **LIVE STAKE PROTRUSION:**
1/4 OF TOTAL LENGTH OF LIVE TREE STAKE SHALL BE VISIBLE ABOVE PROPOSED GRADE AND/OR A MINIMUM TWO BUD SCARS OR BUDS SHOULD BE VISIBLE IN THE COMPLETED INSTALLATION.
- B. **LIVE STAKE LENGTH:**
24"; LENGTH OF THE PROPOSED DORMANT LIVE CUTTING
- C. **LIVE STAKE SPACING:**
4'-8"; SPACING BETWEEN PROPOSED INSTALLED LIVE STAKES. STAKES SHALL BE PLACED IN A TRIANGULAR GRID WITH A DIVERSE GROUPING OF SPECIES IN EACH LOCATION THROUGHOUT THE PROJECT SITE. REFER TO LANDSCAPE PLAN FOR GROUPING INSTRUCTIONS AND PLANT SPACING MATRIX. SEE LIVE STAKE SPACING DETAIL, THIS SHEET.
- D. **LIVE STAKE DIAMETER:**
1/2"-2"; THE PREPARED LIVE STAKE FROM WOODY PLANT MATERIAL SOURCE SHALL BE A MINIMUM OF 1/2" IN DIAMETER AND A MAXIMUM OF 2" IN DIAMETER.

LIVE STAKE DETAIL
NOT TO SCALE

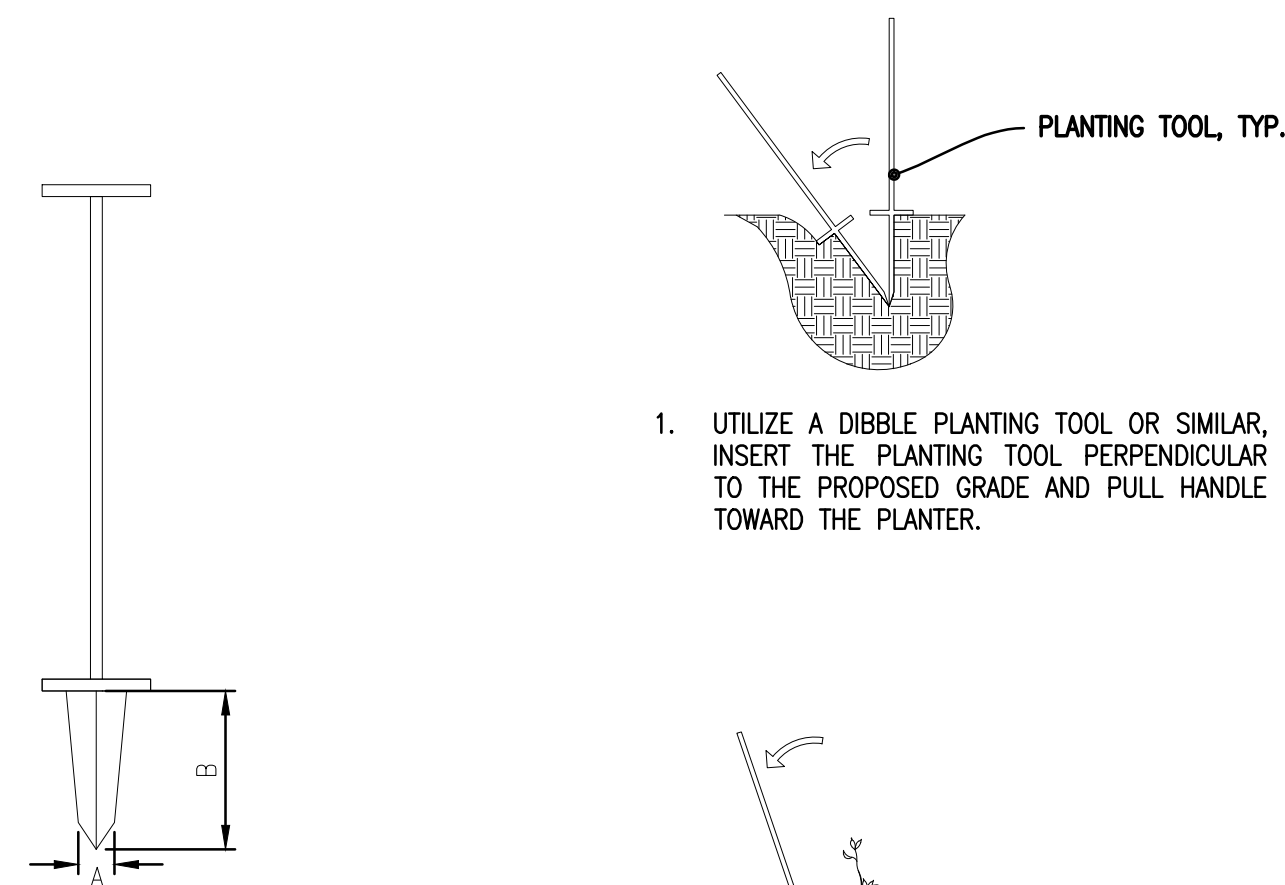


LIVE STAKE SPACING DETAIL
NOT TO SCALE

- NOTE:**
- SEE PLANT LIST AND PLANT LEGEND ON PLANTING PLAN FOR TRIANGULAR SPACING DIMENSION REQUIREMENTS

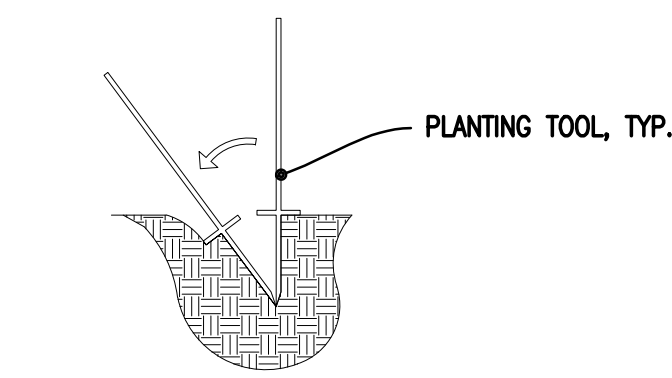


LEDGESTONE STAIRS
NOT TO SCALE

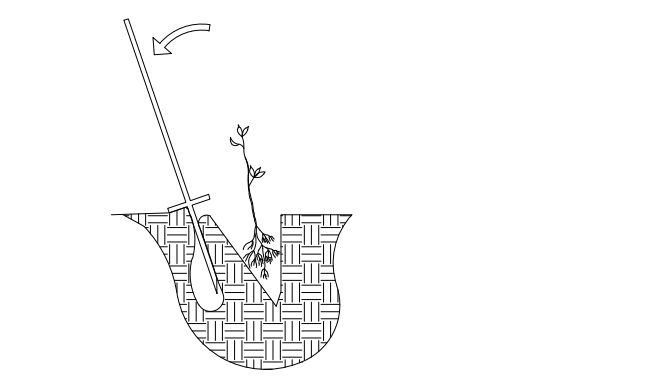


PLANTING TOOL DETAIL
NOT TO SCALE

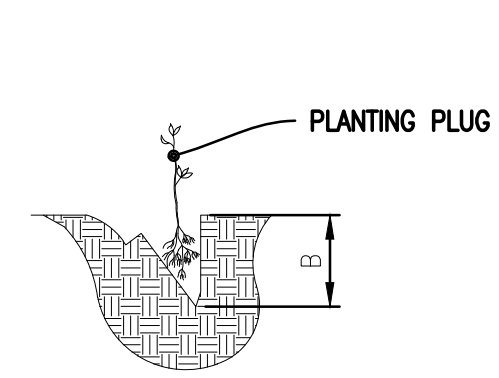
- A. PLANTING TOOL BLADE WIDTH (SHOULD ACCOMMODATE ROOT WIDTH OF PLUG)
- B. PLANTING TOOL BED LENGTH (SHOULD ACCOMMODATE ROOT LENGTH OF PLUG)



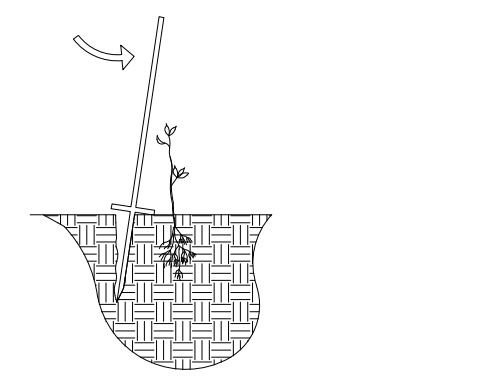
1. UTILIZE A DIBBLE PLANTING TOOL OR SIMILAR, INSERT THE PLANTING TOOL PERPENDICULAR TO THE PROPOSED GRADE AND PULL HANDLE TOWARD THE PLANTER.



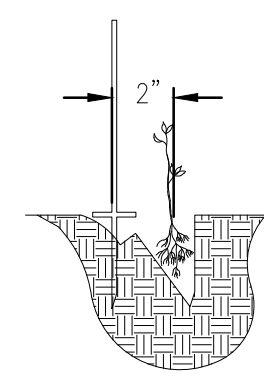
4. PULL THE PLANTING TOOL TOWARD THE PLANTER, FIRING SOIL AT BOTTOM



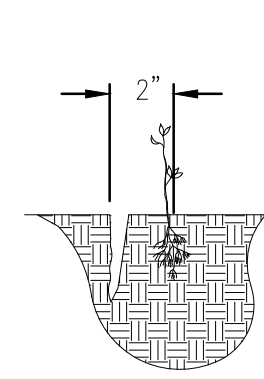
2. REMOVE THE PLANTING TOOL AND PLACE THE PLANTING PLUG AT DEPTH IN PLANTING PIT CREATED FOR PLUG. ENSURE THE ENTIRE ROOT SYSTEM IS BELOW THE SURFACE OF THE SOIL.



5. PUSH THE PLANTING TOOL TOWARD THE VEGETATIVE PLUG, FIRING SOIL AT TOP.



3. INSERT THE PLANTING TOOL 2 INCHES TOWARD THE PLANTER FROM THE VEGETATIVE PLUG LOCATION.



6. LEAVE COMPACTION HOLE OPEN. WATER THOROUGHLY. DO NOT MULCH PLUG PLANTINGS. STRAW BROADCAST COVER WILL BE USED IN LIEU OF MULCH FOR ALL PLUG PLANTINGS, LIVE STAKES AND SEEDING AREAS.

PLUG PLANTING DIAGRAM
NOT TO SCALE

REVISIONS

VERT. DATUM

FILED 9/16

SCALE

1"=4'

H.

CITY/TOWNSHIP

Charlevoix

COUNTY

Michigan

CADD

MPB

PROJ. MGR.

Valerie Minors

ENG.

035-16-010

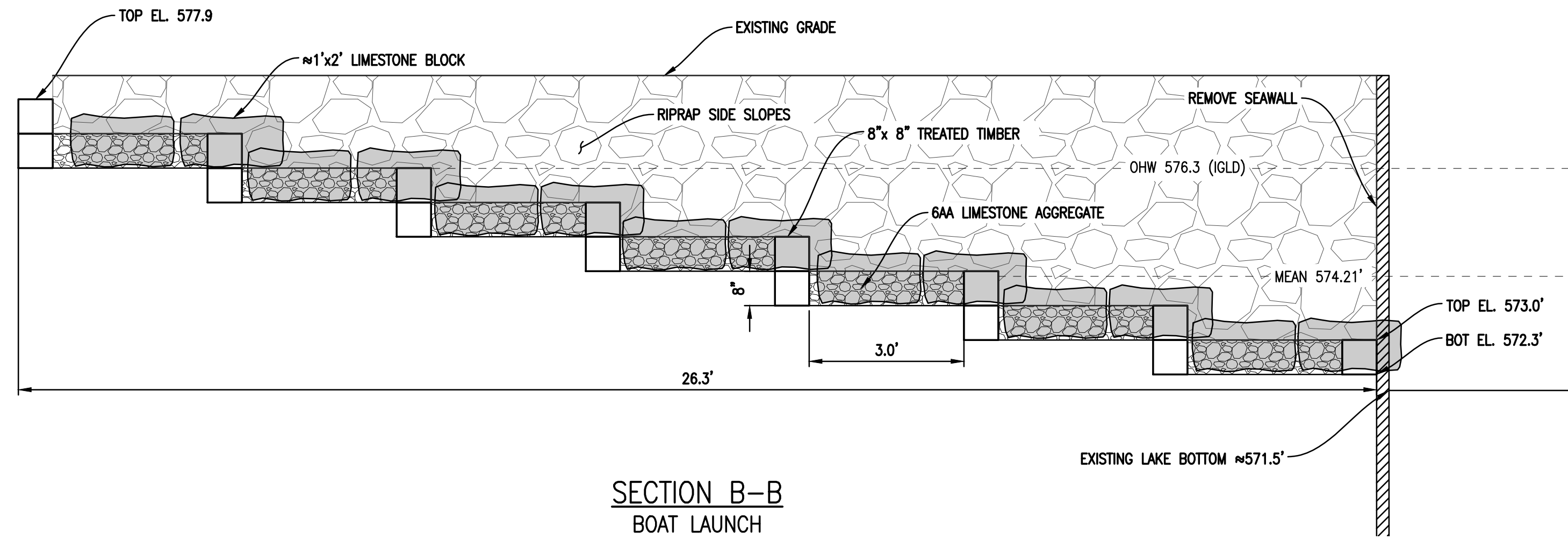
PROJ. NUMBER

DATE

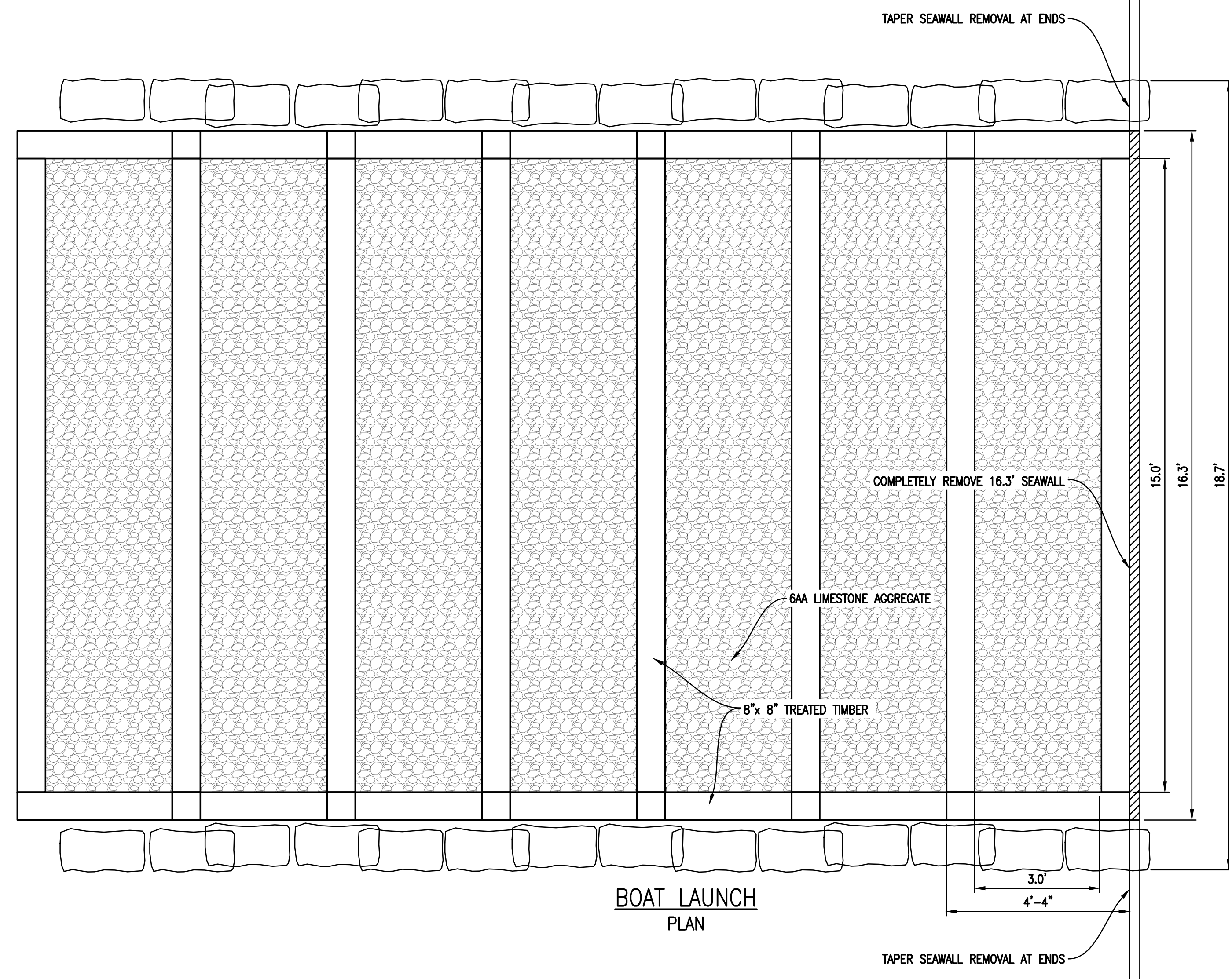
SHEET

12

OF 14

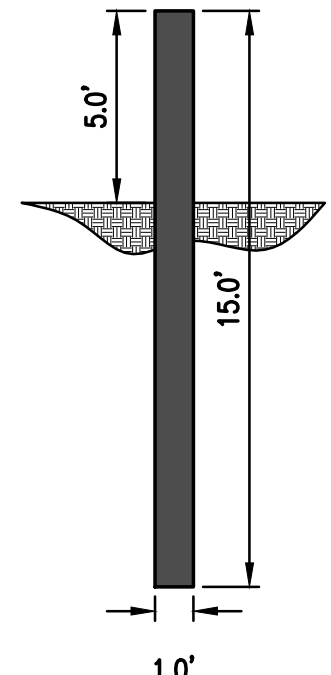


SECTION B-B
BOAT LAUNCH

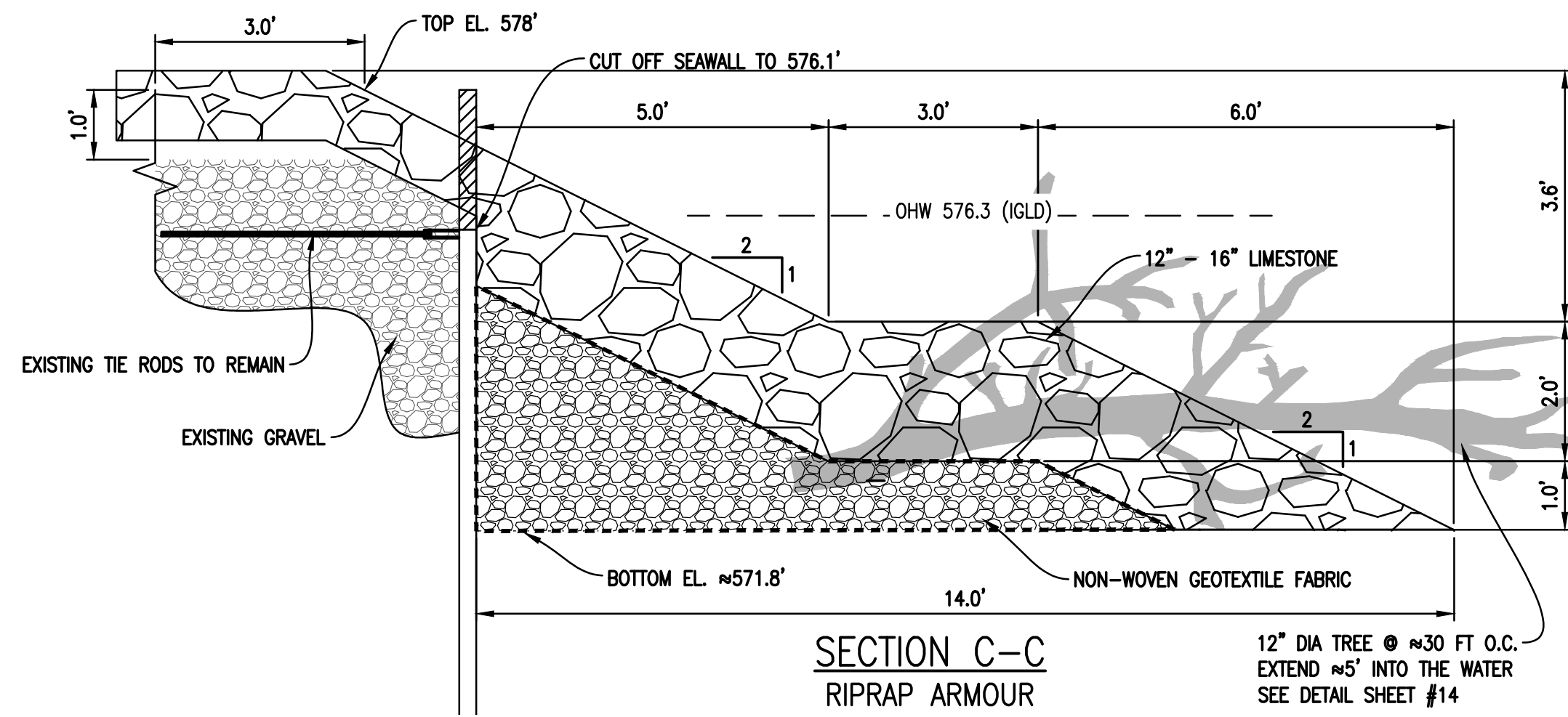


BOAT LAUNCH
PLAN

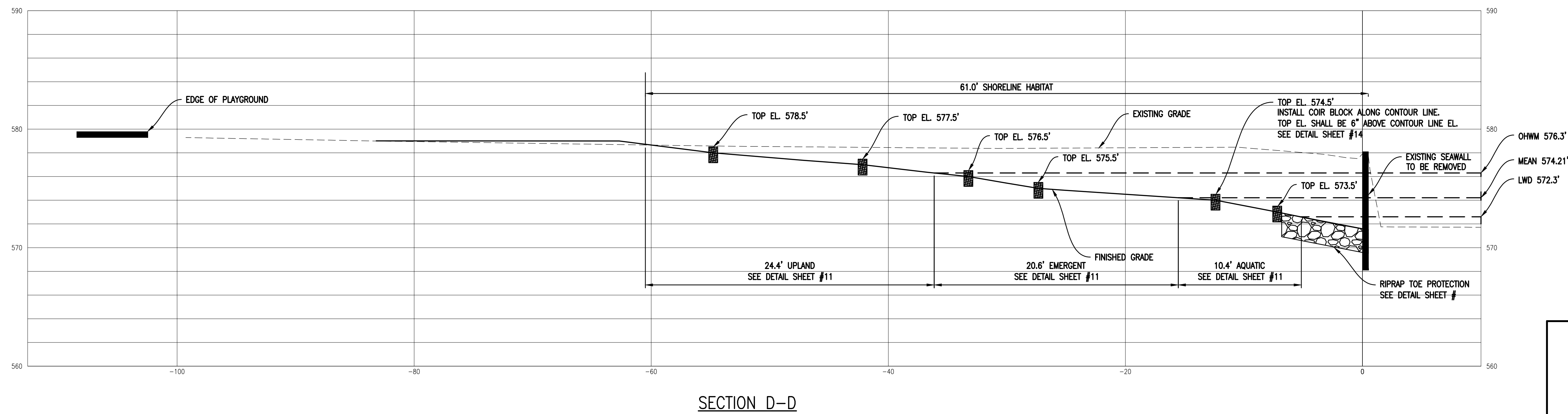
- NOTES:
1. PILING SHALL BE MADE OF OAK OR APPROVED HARDWOOD.
 2. MINIMUM 15' LONG AND 10"-12" DIAMETER.
 3. SPACE OAK PILINGS AT 10' SPACING O.C.



OAK PILING DETAIL
NOT TO SCALE

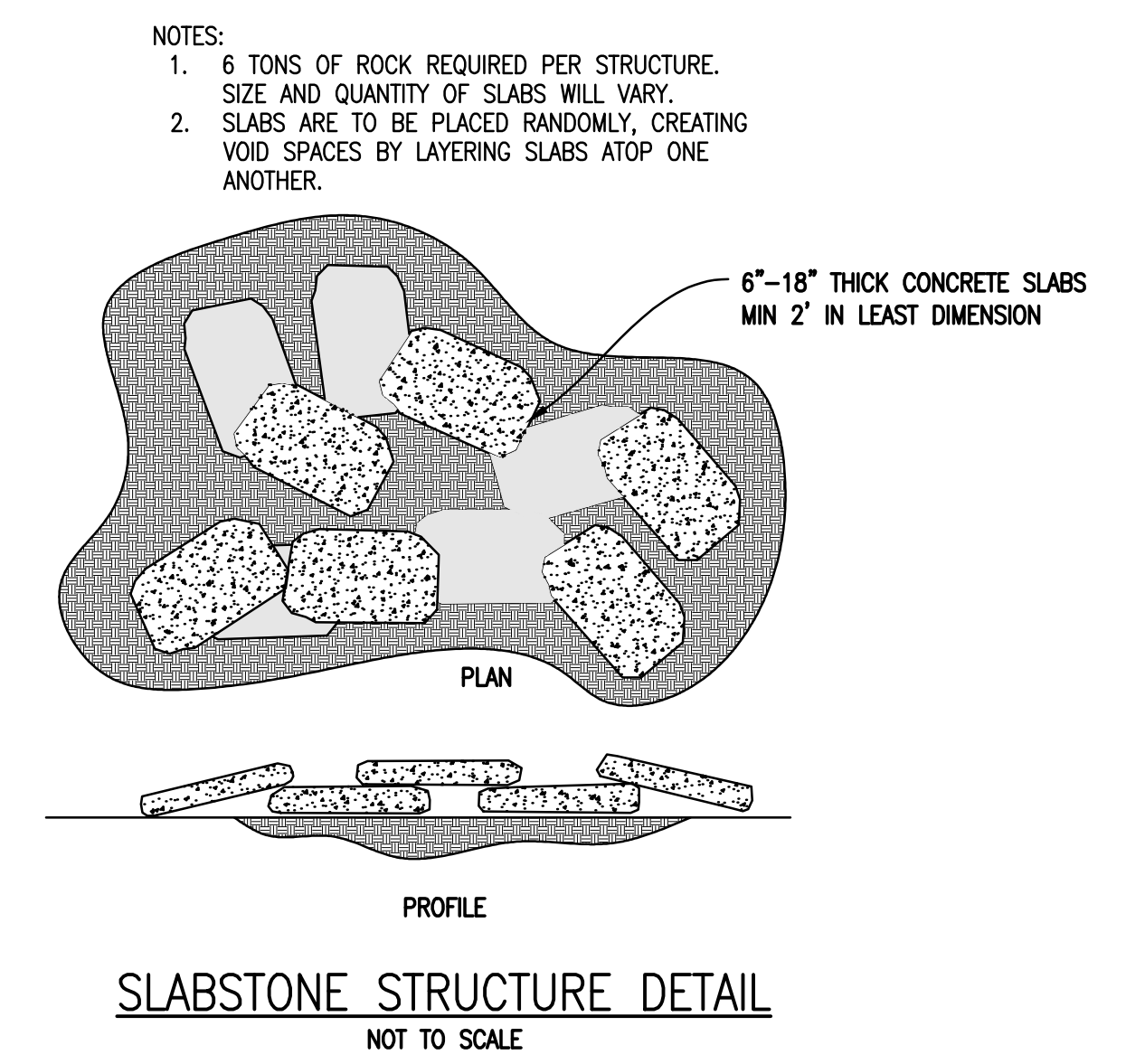
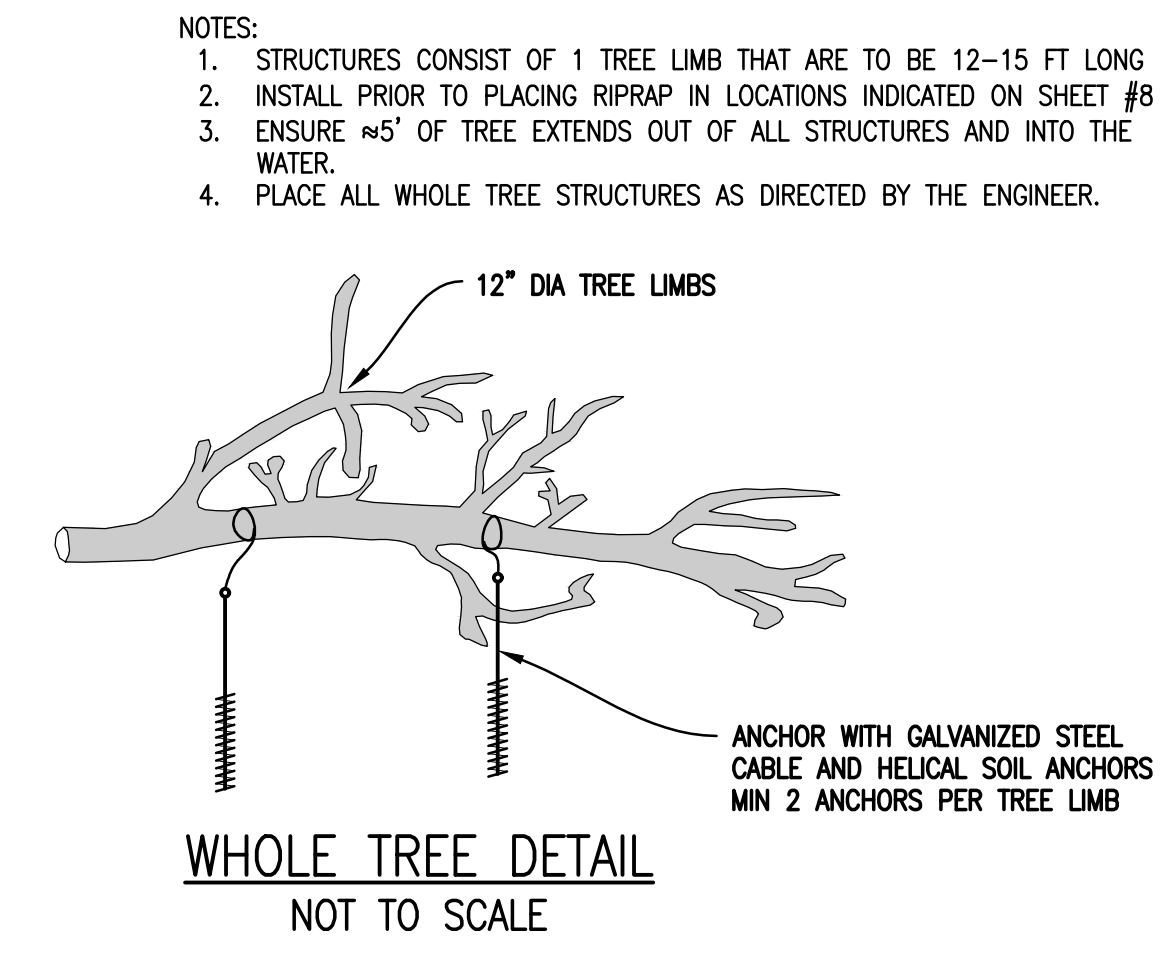
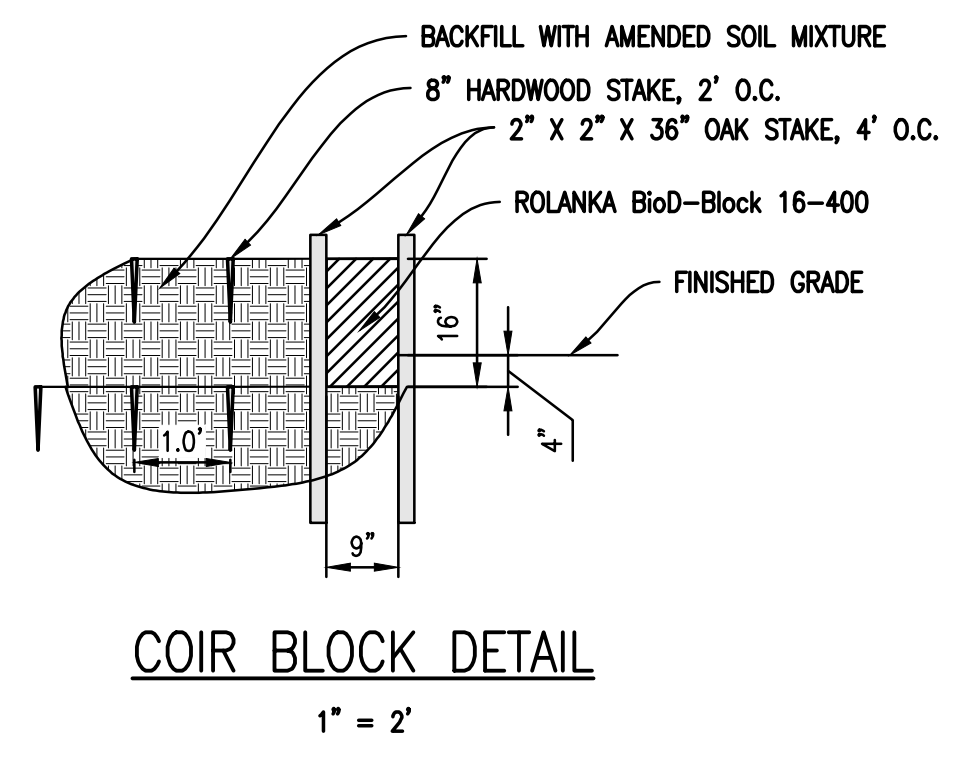
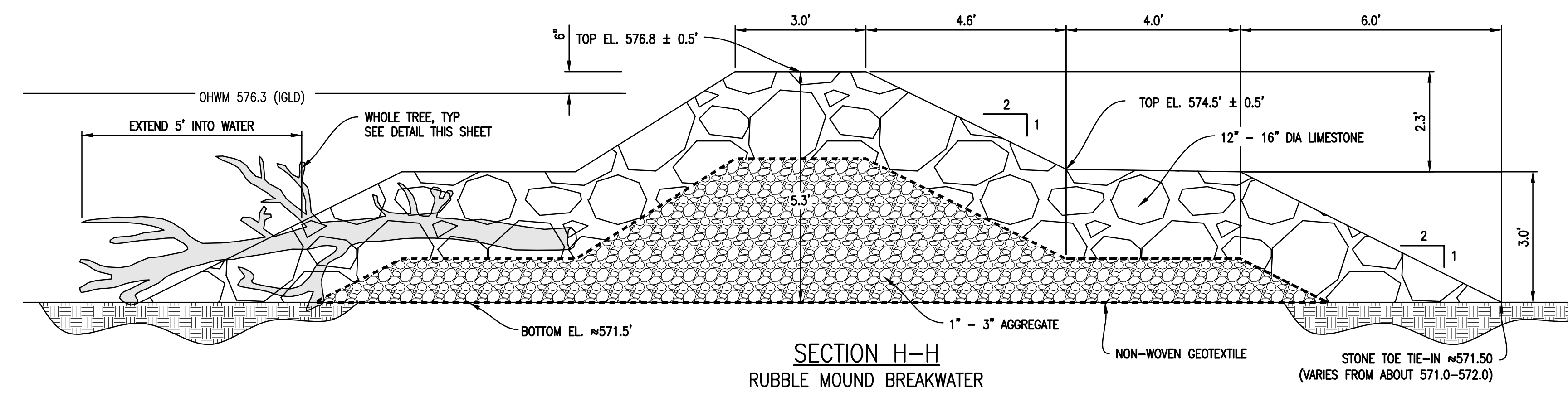
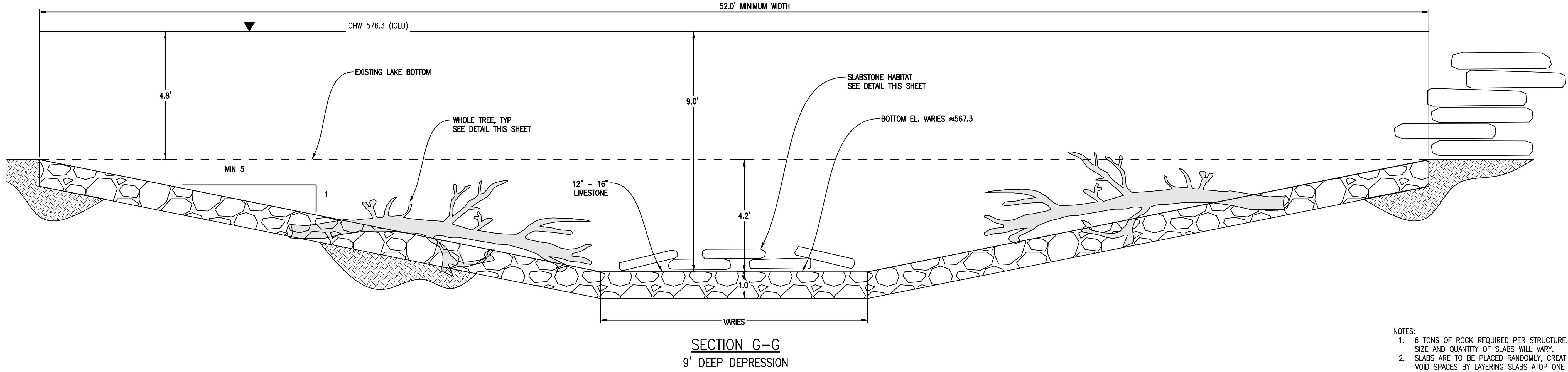
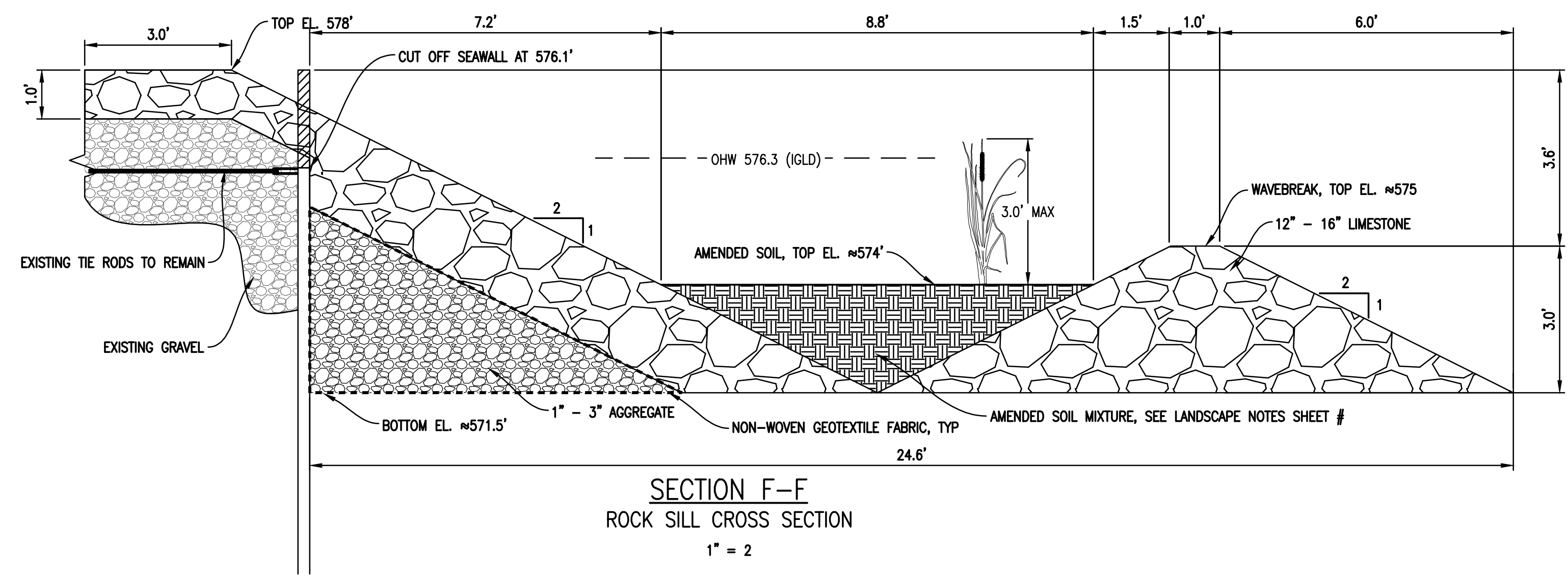
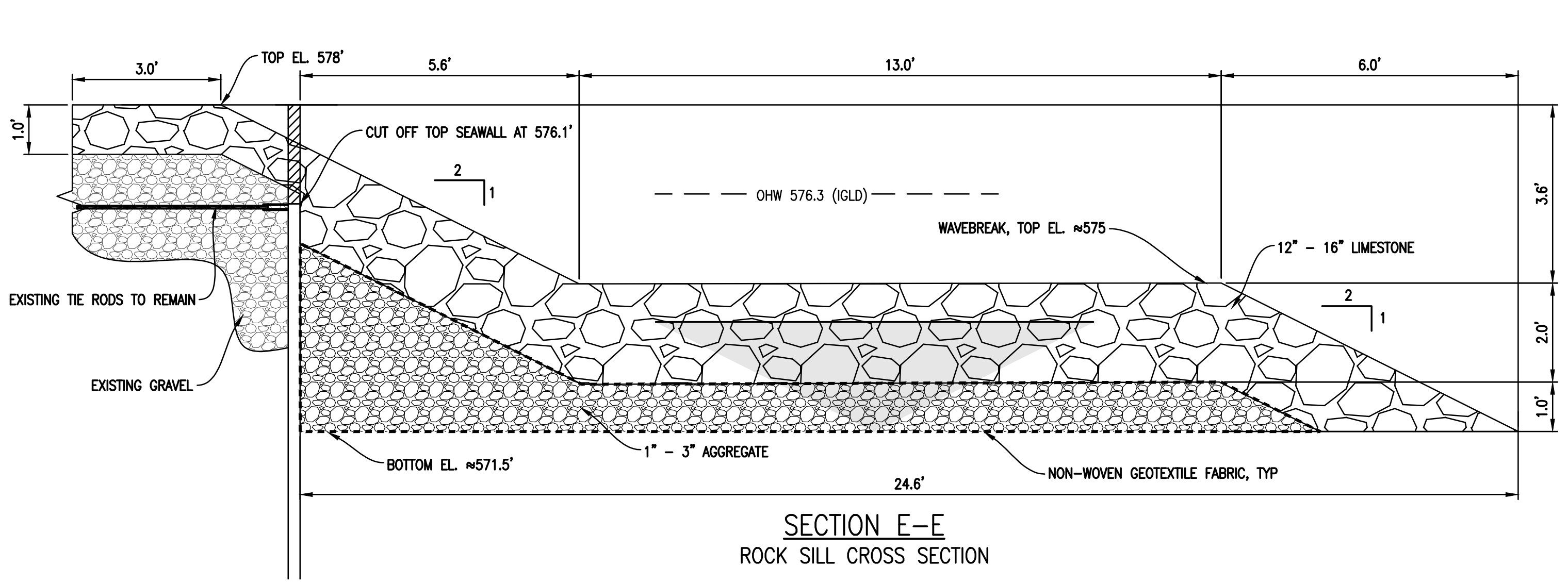


SECTION C-C
RIPRAP ARMOUR



SECTION D-D

PLACEHOLDER FOR MATERIAL QUANTITIES



PLACEHOLDER FOR MATERIAL QUANTITIES

REVISIONS:

CITY/TOWNSHIP: Chesterfield Twp
COUNTY: Macomb
SCALE: H: 1"=40' V: 1"=40'
VERT. DATUM: IGLD 85
HORIZ. DATUM: IGLD 85

**CHESTERFIELD TOWNSHIP
BRANDENBURG PARK SHORELINE AND HABITAT RESTORATION
SITE DETAILS**

DRAWING PATH: P:\0201_0600\0355\190010_Brandenburg_Park_Shoreline\Drawings\Civil\Details\190010DET.dwg, Jun 14, 2019, 10:49am

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