

SITE USE PERMIT SET

1320 S STREET, ANDOVER, MA 01810
12MW/48MWh KWDC ENERGY STORAGE SYSTEM

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NOT FOR CONSTRUCTION



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1320 S STREET
ANDOVER, MA 01810

PROJECT NUMBER:
120-0345

REV	DATE	DESCRIPTION	CHECKED	RELEASE LEVEL
1	4/12/22	SITE USE PERMIT SET	CS	BS
2	6/14/22	RESPONSE TO PEER REVIEW COMMENTS	CS	BS

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

T-1
TITLE PAGE

GENERAL NOTES

- AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE THE EPC PROVIDER HIRED BY THE SYSTEM/PROJECT OWNER.
- WHEN THERE IS A CONFLICT BETWEEN THESE GENERAL NOTES AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING: LOCAL BUILDING CODE, LOCAL ELECTRICAL CODE, ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK AND THOSE CODES AND STANDARDS LISTED IN THESE DRAWINGS.
- THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A CONSTRUCTION LEVEL DESIGN AND ASSOCIATED DRAWINGS AND DETAILS.
- COORDINATE THESE DRAWINGS WITH SPECIFICATIONS AND MANUFACTURER INSTALLATION AND OPERATION MANUALS.
- UNLESS OTHERWISE NOTED, THE DESIGN REPRESENTED ON THESE PLANS IS BASED ON THE INFORMATION AND CRITERIA LISTED IN THE "BASIS OF DESIGN" SECTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY SUCH INFORMATION IN PREPARATION OF THE CONSTRUCTION DESIGN.
- THE EXISTING CONDITIONS REPRESENTED ON THESE PLANS ARE BASED ON PUBLICLY AVAILABLE INFORMATION AND THE SITE DISCOVERY SUMMARIZED IN THESE DRAWINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF SUCH INFORMATION AND SUPPLEMENT WITH ANY ADDITIONAL REQUIRED INFORMATION.
- UNLESS INDICATED AS EXISTING (E), ALL PROPOSED MATERIALS AND EQUIPMENT SHALL BE CONSIDERED TO BE NEW.
- ALL EQUIPMENT AND COMPONENTS SHALL BE MOUNTED IN COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS, CONSTRUCTION DETAILS, AND/OR PRUDENT INDUSTRY STANDARDS.
- TO THE EXTENT THAT TRESS AND OTHER FEATURES AFFECT THE SYSTEM'S PRODUCTION, SUCH PRODUCTION MODELING IS BASED ON THE EXISTING APPROXIMATE HEIGHTS AND LOCATIONS RELATIVE TO THE SYSTEM AND MAY BE IMPACTED AS TREES GROW AND OTHER FEATURES CHANGE.

PROJECT SCOPE

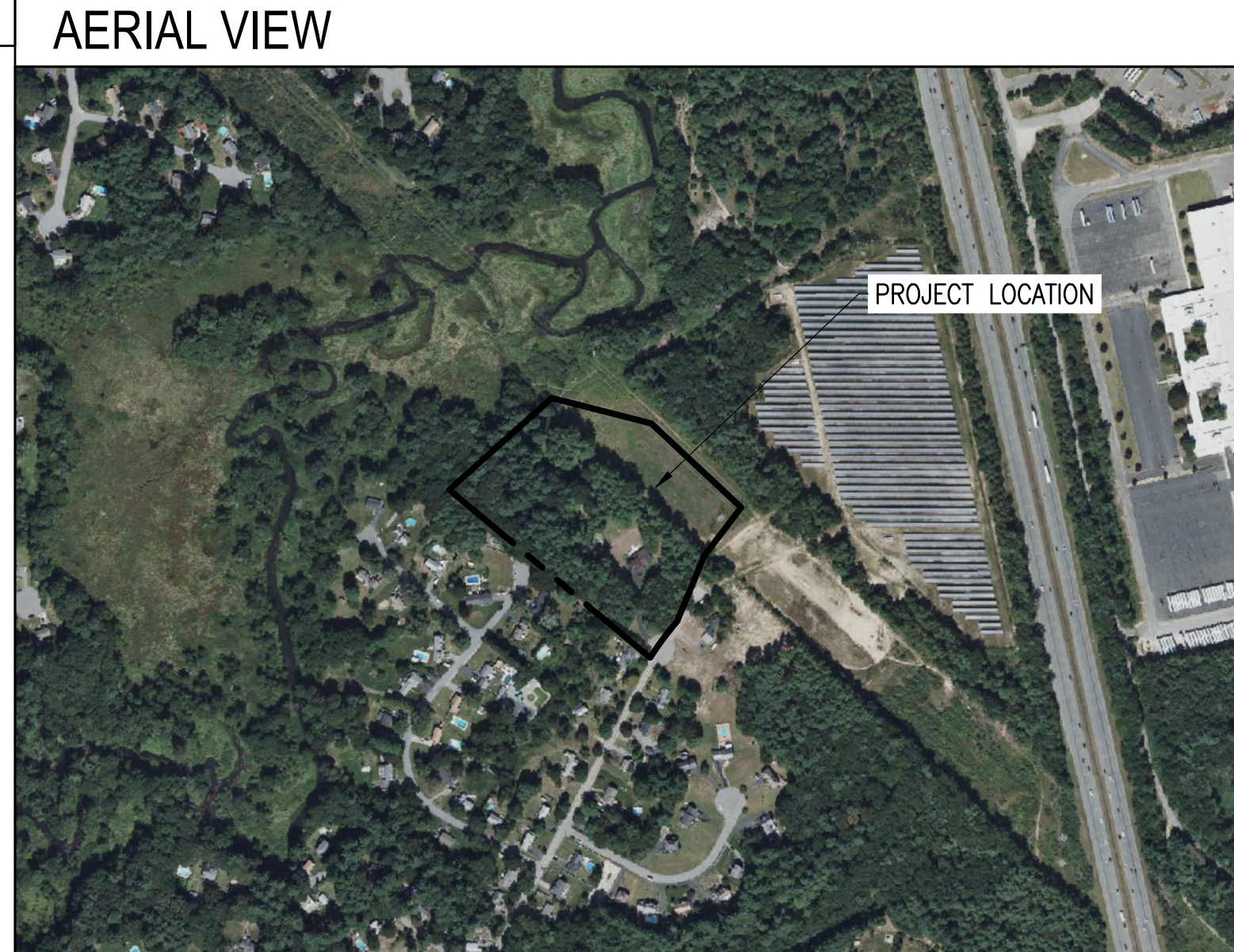
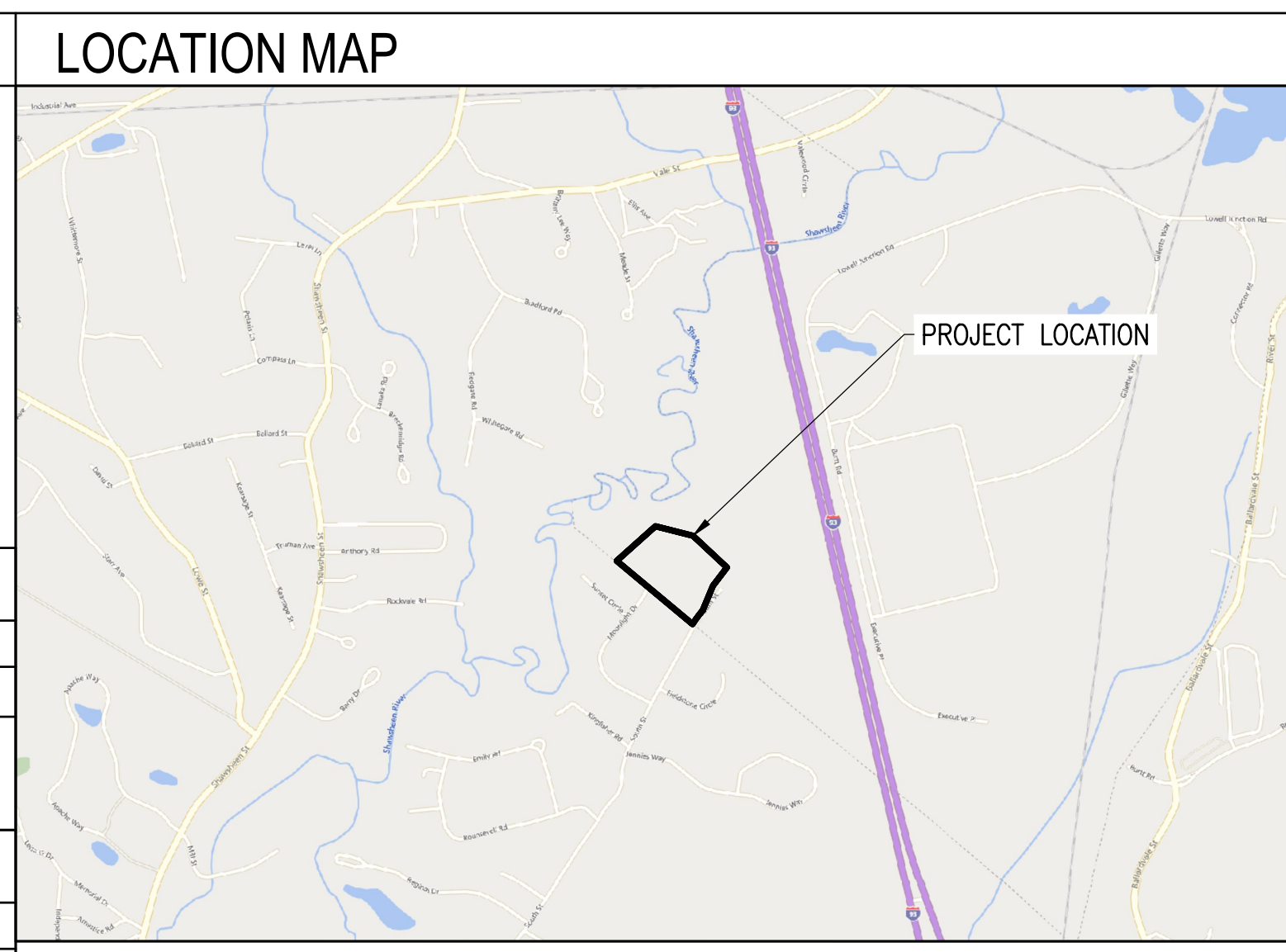
THIS PROJECT CONSISTS OF THE INSTALLATION OF ENERGY STORAGE EQUIPMENT, PER THE SYSTEM DESCRIPTION, BELOW. THE ENERGY STORAGE MODULES WILL BE INSTALLED IN A PURPOSE BUILT UNIT(S), AND FIRE SUPPRESSION SYSTEMS. THE ENERGY STORAGE MODULES WILL BE WIRED IN SERIES STRINGS AND CONNECTED THROUGH DC/DC CONVERTERS, WHICH WILL CONVERT DC TO AC WHILE THE BATTERIES ARE DISCHARGING.

ENERGY STORAGE SYSTEM DESCRIPTION

SYSTEM POWER CAPACITY	12000 KWAC
SYSTEM ENERGY CAPACITY	48,000 KWH
POWER CONVERSION SYSTEM / INVERTER	(4) SMA SUNNY CENTRAL STORAGE 3950 UP-XT-US (POWER LIMITED TO 3333 KW)

TOTAL SYSTEM DESCRIPTION

MAXIMUM EXPORT TO UTILITY	12000 KWAC
STORAGE CHARGING MODE	GRID ONLY



APPLICABLE CODES AND STANDARDS

2020 MASSACHUSETTS ELECTRICAL CODE 527 CMR12.00
MASSACHUSETTS BUILDING CODE 9TH EDITION
UL-1703 - SOLAR MODULES
UL-1741 - INVERTERS, COMBINER BOXES
UL-2703 - RACKING MOUNTING SYSTEMS AND CLAMPING DEVICES FOR PV MODULES
UL-1642 - STANDARD FOR LITHIUM BATTERIES
UL-1973 - STANDARD FOR BATTERIES FOR USE IN LIGHT ELECTRIC RAIL (LER) APPLICATIONS AND STATIONARY APPLICATION
UL-9540 - STANDARD FOR ENERGY STORAGE SYSTEM AND EQUIPMENT

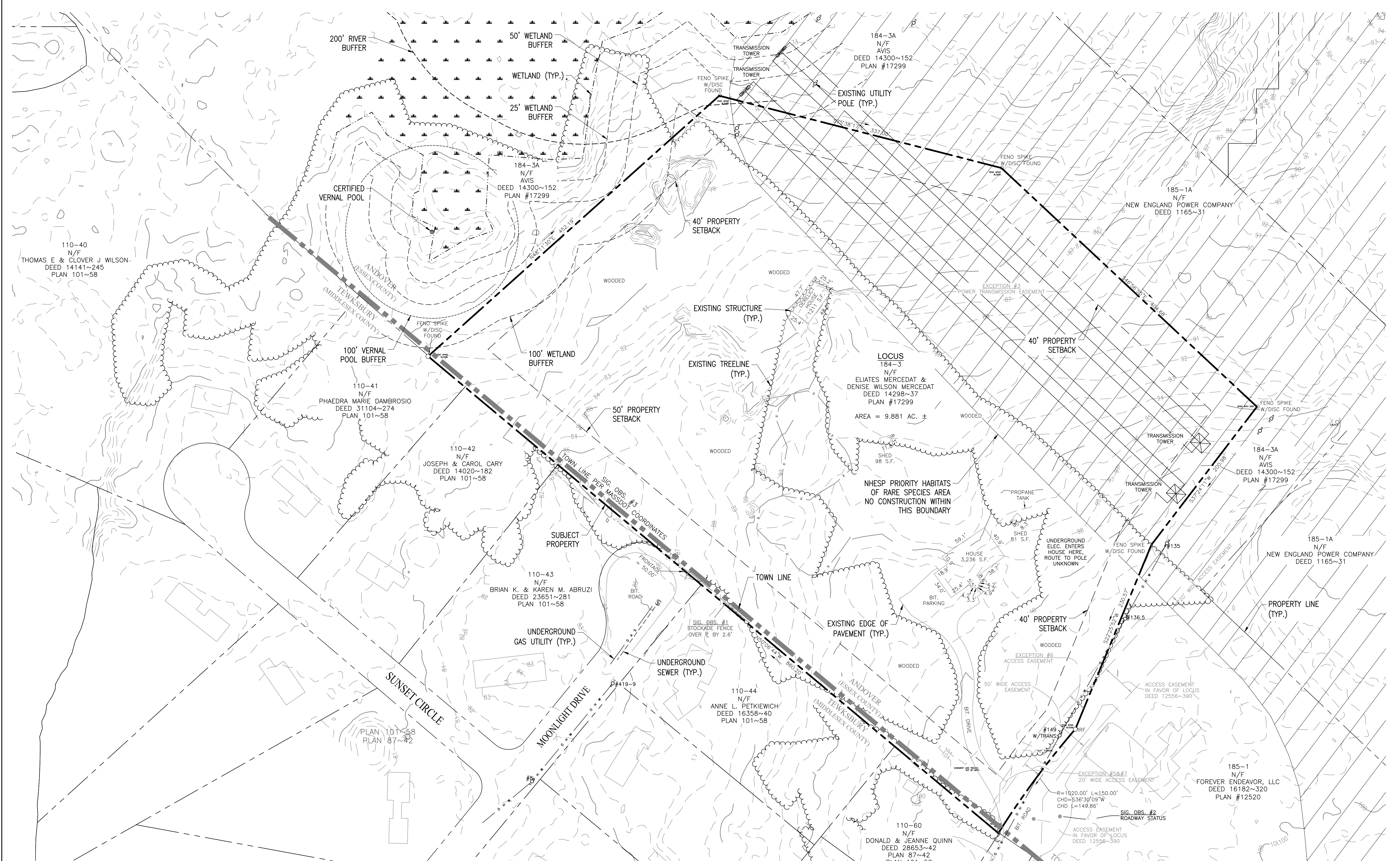
PROJECT DIRECTORY

LAND OWNER / HOST TES MERCEDAT 1320 SOUTH STREET TEWKSBURY, MA 01876 617-699-6315	CIVIL ENGINEER FIRM: BORREGO SOLAR SYSTEMS, INC. CONTACT: BRANDON SMITH, P.E. PHONE: 978-221-3093
AUTHORITY HAVING JURISDICTION TOWN OF ANDOVER 36 BARTLET STREET ANDOVER, MA 01810 978-623-8650	ELECTRICAL ENGINEER FIRM: BORREGO SOLAR SYSTEMS, INC CONTACT: AHARON WRIGHT, P.E. PHONE: 978-221-3081
UTILITY NATIONAL GRID	DESIGN ENGINEER FIRM: BORREGO SOLAR SYSTEMS, INC CONTACT: STEVEN RIGGALL PHONE: 518-309-7837

GENERAL ABBREVIATIONS

(E) EXISTING	NS NORTH-SOUTH
AHJ AUTHORITY HAVING JURISDICTION	NTS NOT TO SCALE
AL ALUMINUM	OAE OR APPROVED EQUAL
APPROX APPROXIMATE	OC ON CENTER
ARY ARRAY	OD OUTSIDE DIAMETER
BLDG BUILDING	OF/CI OWNER FURNISHED CONTRACTOR INSTALLED
BSS BORREGO SOLAR SYSTEM	PV PHOTOVOLTAIC
CL CENTERLINE	PVC POLY VINYL CHLORIDE
DAS DATA ACQUISITION SYSTEM	SCH SCHEDULE
DIA DIAMETER	SS STAINLESS STEEL
DO DITTO	SSS SOLAR SUPPORT STRUCTURE
EW EAST-WEST	STC STANDARD TEST CONDITIONS
FBO FURNISHED BY OTHERS	TBD TO BE DETERMINED
FF FORWARD FACING	TP TAMPER PROOF
GALV GALVANIZED	TYP TYPICAL
HDG HOT DIP GALVANIZED	UON UNLESS OTHERWISE NOTED
HVAC HEATING VENTILATION AND AIR CONDITIONING	VIF VERIFY IN FIELD
ID INSIDE DIAMETER	WP WEATHER PROOF
MFR MANUFACTURER	
MOD SOLAR MODULE	

REV 1.0



110-40
N/F
THOMAS E & CLOVER J WILSON
DEED 14141~245
PLAN 101~58

CERTIFIED
VERNAL POOL

110-41
N/F
PHAEDRA MARIE DAMBROSIO
DEED 31104~274
PLAN 101~58

110-42
N/F
JOSEPH & CAROL CARY
DEED 14020~182
PLAN 101~58

110-43
N/F
BRIAN K. & KAREN M. ABRUZI
DEED 23651~281
PLAN 101~58

PLAN 101~58
PLAN 87~42

110-44
N/F
ANNE L. PETKIEWICH
DEED 16358~40
PLAN 101~58

110-60
N/F
DONALD & JEANNE QUINN
DEED 28653~42
PLAN 87~42

184-3A
N/F
AVIS
DEED 14300~152
PLAN #17299

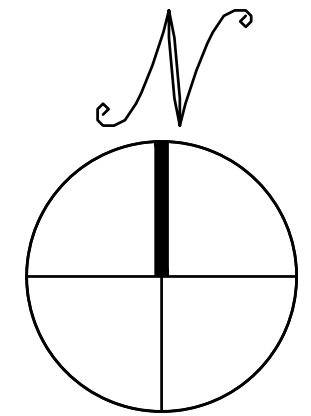
184-3A
N/F
AVIS
DEED 14300~152
PLAN #17299

LOCUS
184-3
N/F
ELIATES MERCEDAT &
DENISE WILSON MERCEDAT
DEED 14298~37
PLAN #17299
AREA = 9.881 AC. ±

184-3A
N/F
AVIS
DEED 14300~152
PLAN #17299

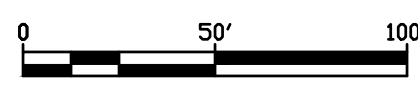
185-1A
N/F
NEW ENGLAND POWER COMPANY
DEED 1165~31

185-1
N/F
FOREVER ENDEAVOR, LLC
DEED 16182~320
PLAN #12520



EXISTING CONDITIONS PLAN

SCALE: 1" = 50'



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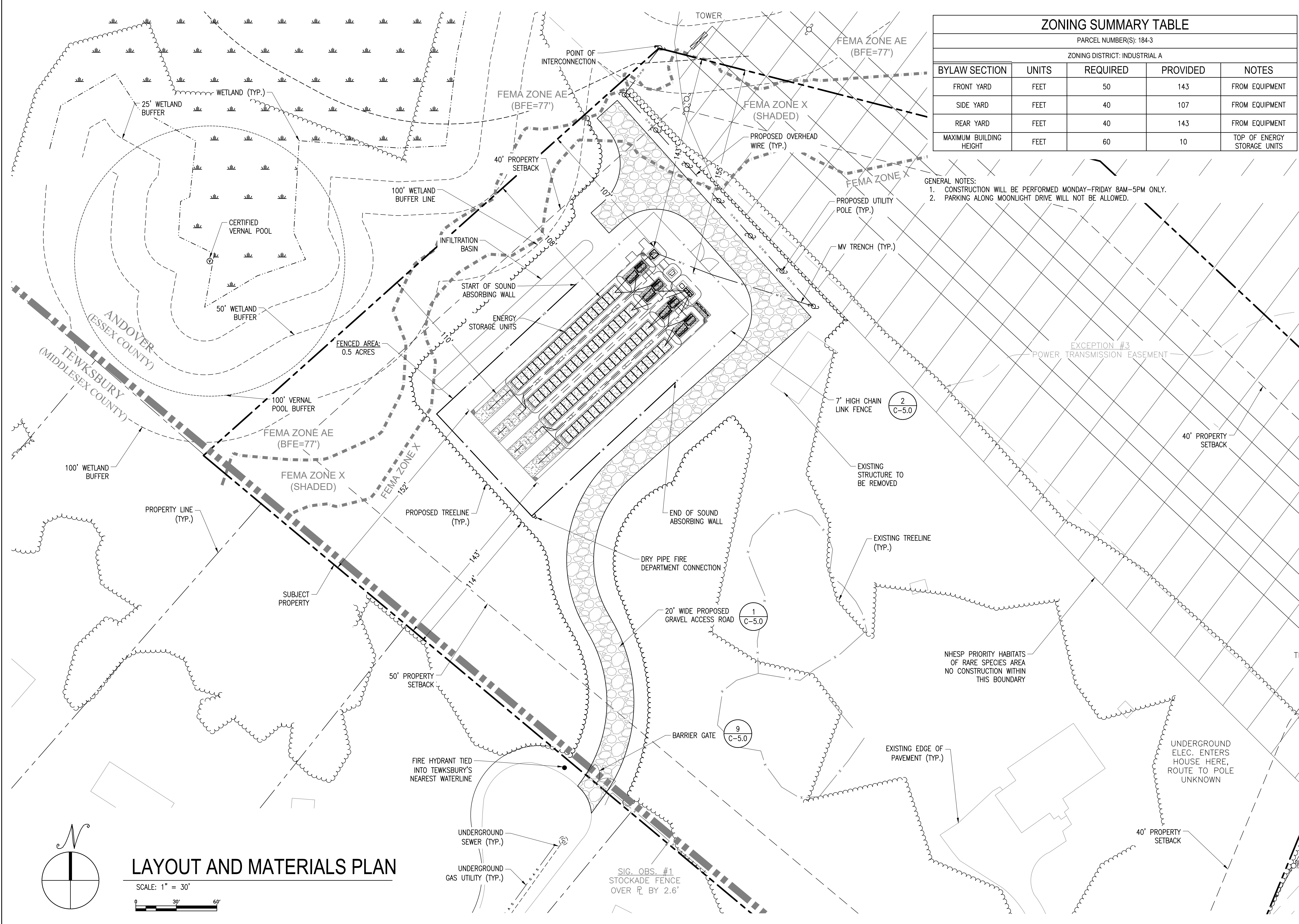
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ARCH D 24" X 36"

C-1.0
EXISTING CONDITIONS PLAN



ZONING SUMMARY TABLE

PARCEL NUMBER(S): 184-3
ZONING DISTRICT: INDUSTRIAL A

BYLAW SECTION	UNITS	REQUIRED	PROVIDED	NOTES
FRONT YARD	FEET	50	143	FROM EQUIPMENT
SIDE YARD	FEET	40	107	FROM EQUIPMENT
REAR YARD	FEET	40	143	FROM EQUIPMENT
MAXIMUM BUILDING HEIGHT	FEET	60	10	TOP OF ENERGY STORAGE UNITS

- GENERAL NOTES:
- CONSTRUCTION WILL BE PERFORMED MONDAY-FRIDAY 8AM-5PM ONLY.
 - PARKING ALONG MOONLIGHT DRIVE WILL NOT BE ALLOWED.

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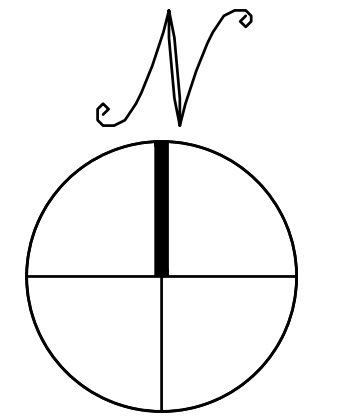
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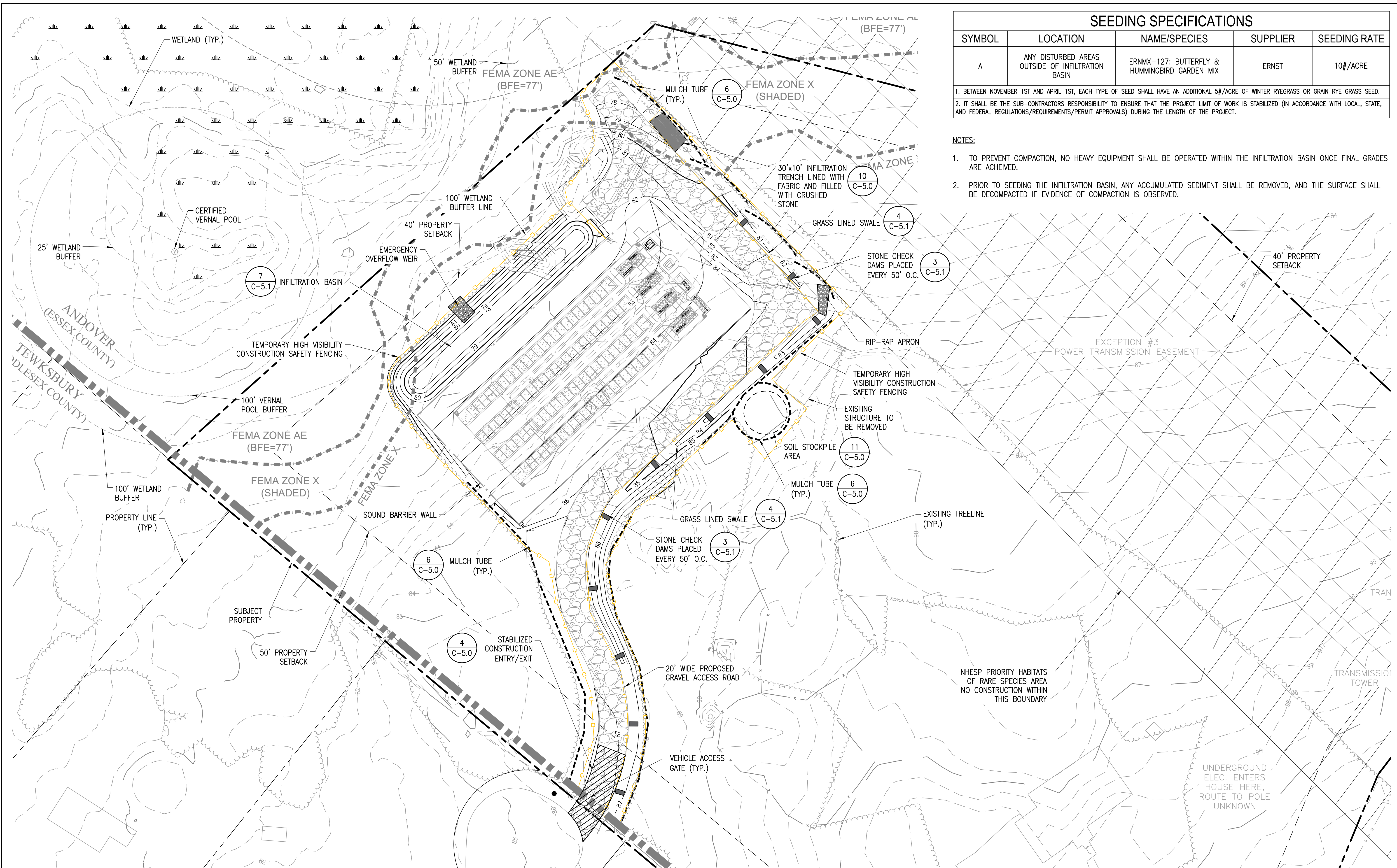
C-3.0
LAYOUT AND MATERIALS PLAN



LAYOUT AND MATERIALS PLAN

SCALE: 1" = 30'

SIG. OBS. #1
STOCKADE FENCE OVER R BY 2.6'



SEEDING SPECIFICATIONS

SYMBOL	LOCATION	NAME/SPECIES	SUPPLIER	SEEDING RATE
A	ANY DISTURBED AREAS OUTSIDE OF INFILTRATION BASIN	ERNMX-127: BUTTERFLY & HUMMINGBIRD GARDEN MIX	ERNST	10#/ACRE

1. BETWEEN NOVEMBER 1ST AND APRIL 1ST, EACH TYPE OF SEED SHALL HAVE AN ADDITIONAL 5#/ACRE OF WINTER RYEGRASS OR GRAM RYE GRASS SEED.
 2. IT SHALL BE THE SUB-CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE PROJECT LIMIT OF WORK IS STABILIZED (IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS/REQUIREMENTS/PERMIT APPROVALS) DURING THE LENGTH OF THE PROJECT.

- NOTES:**
- TO PREVENT COMPACTION, NO HEAVY EQUIPMENT SHALL BE OPERATED WITHIN THE INFILTRATION BASIN ONCE FINAL GRADES ARE ACHIEVED.
 - PRIOR TO SEEDING THE INFILTRATION BASIN, ANY ACCUMULATED SEDIMENT SHALL BE REMOVED, AND THE SURFACE SHALL BE DECOMPACTED IF EVIDENCE OF COMPACTION IS OBSERVED.

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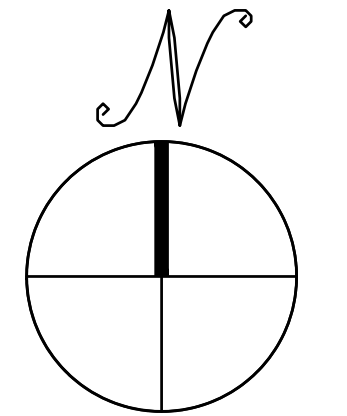
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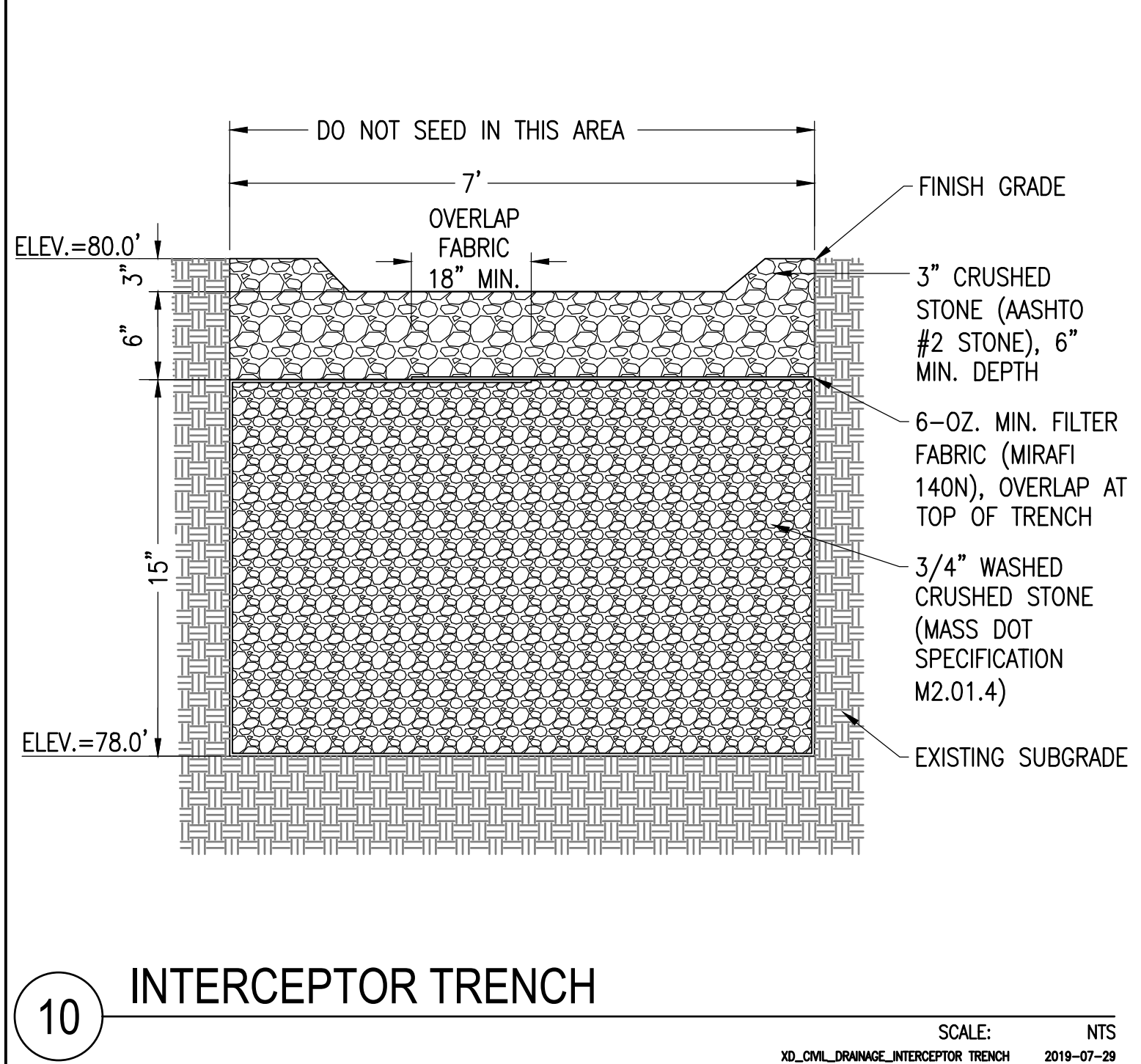
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C-4.0
 GRADING AND EROSION CONTROL PLAN

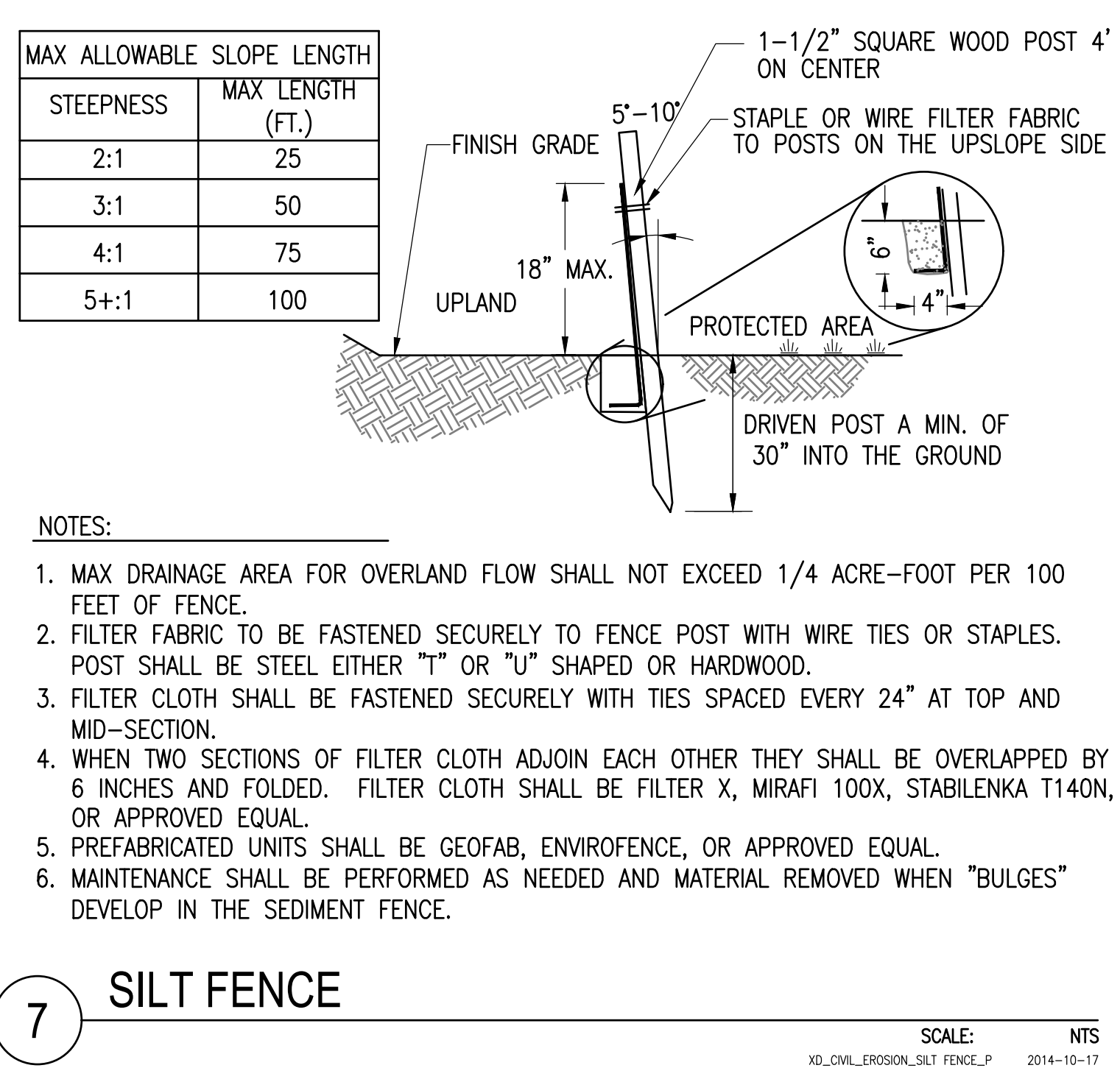


GRADING AND EROSION CONTROL PLAN

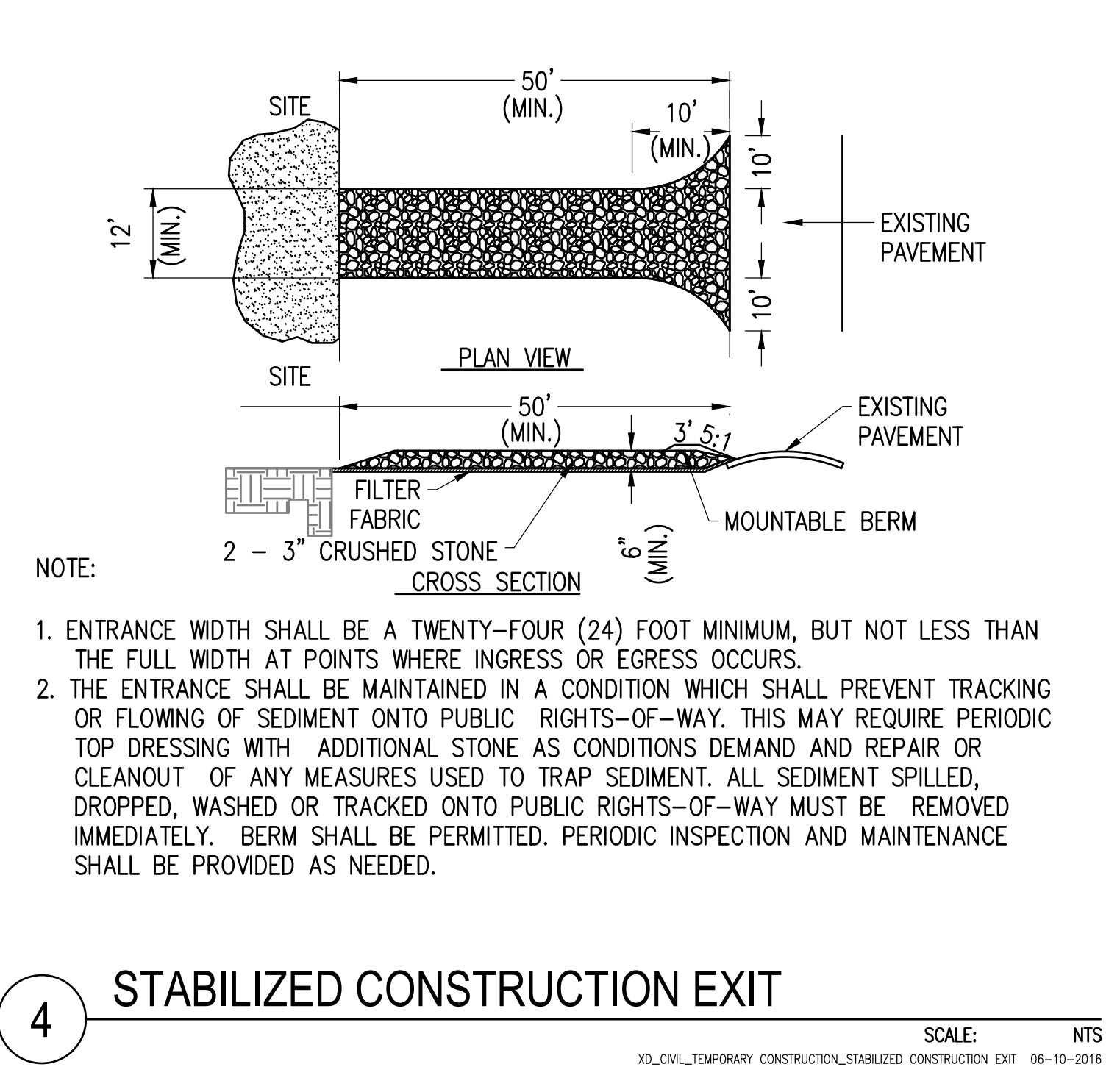
SCALE: 1" = 30'
 0 30' 60'



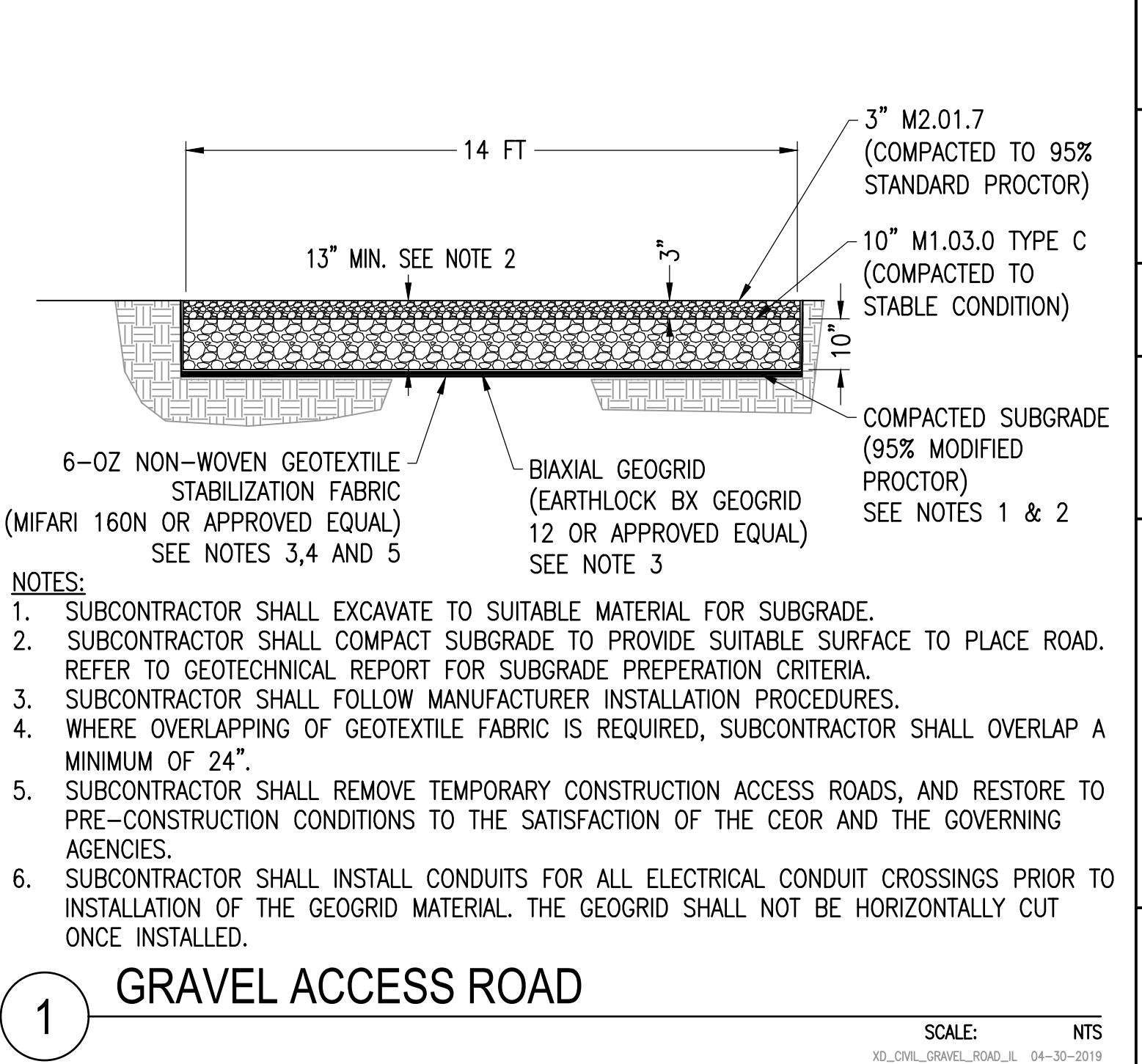
10 INTERCEPTOR TRENCH
SCALE: NTS
XD_CIVIL_DRAWING_INTERCEPTOR_TRENCH 2019-07-29



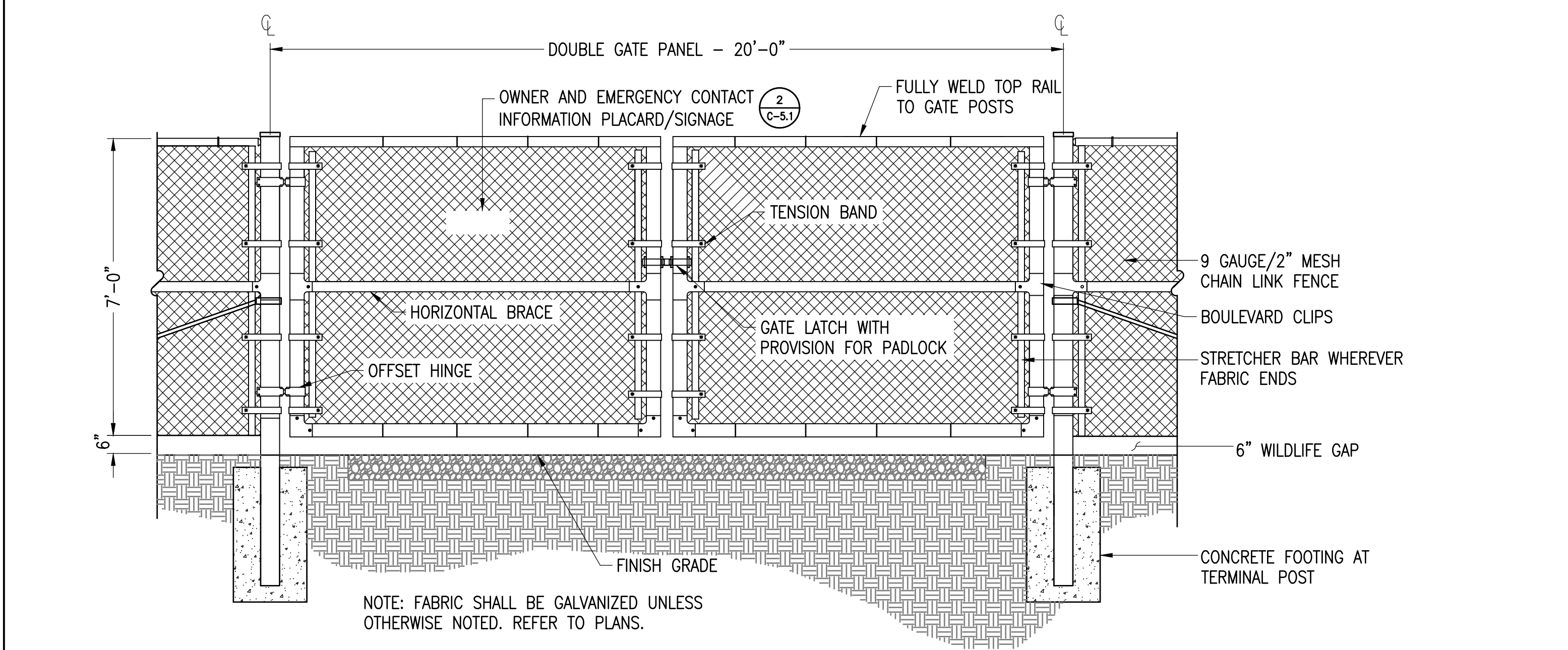
7 SILT FENCE
SCALE: NTS
XD_CIVIL_EROSION_SILT_FENCE_P 2014-10-17



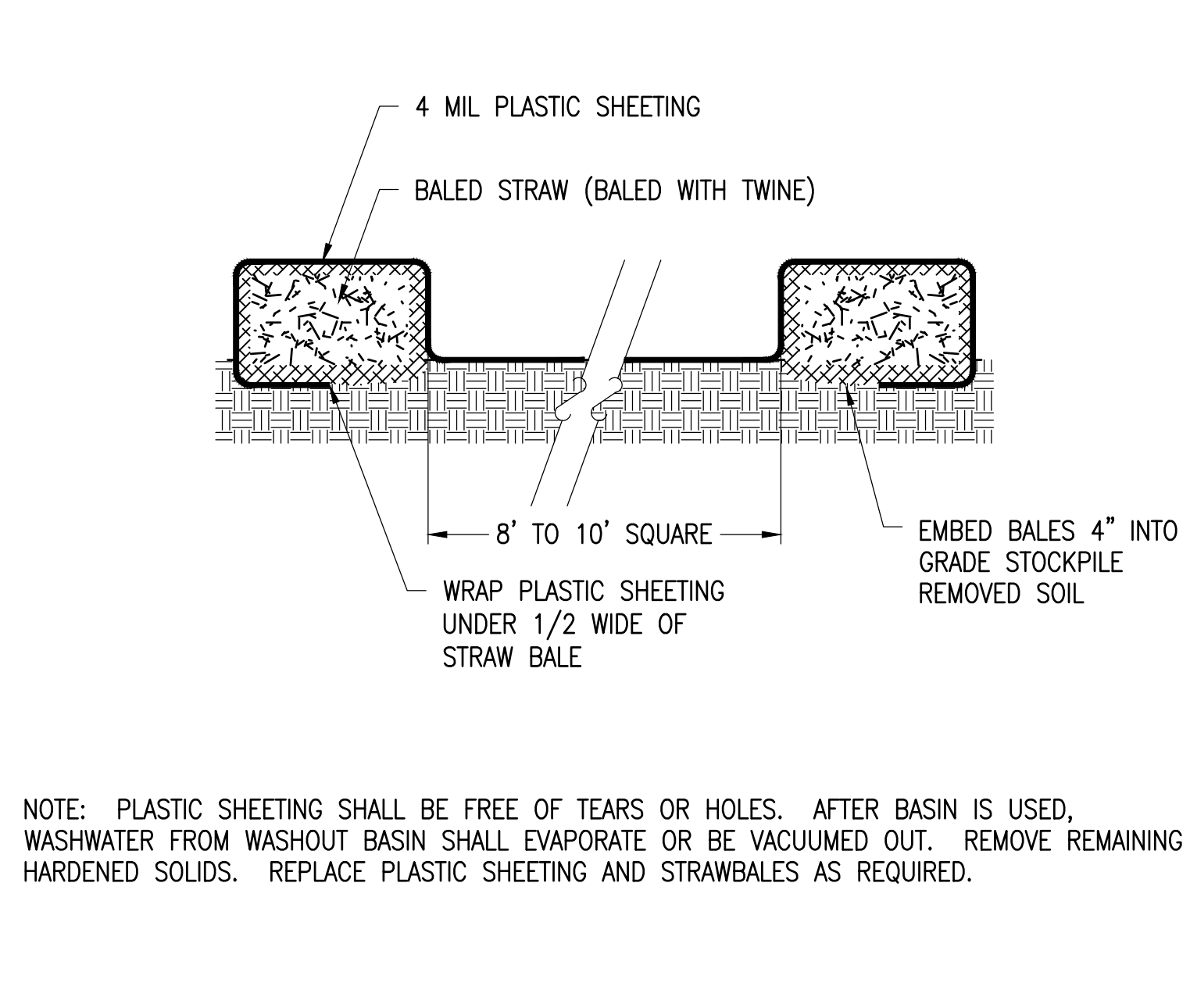
4 STABILIZED CONSTRUCTION EXIT
SCALE: NTS
XD_CIVIL_TEMPORARY_CONSTRUCTION_STABILIZED_CONSTRUCTION_EXIT 06-10-2016



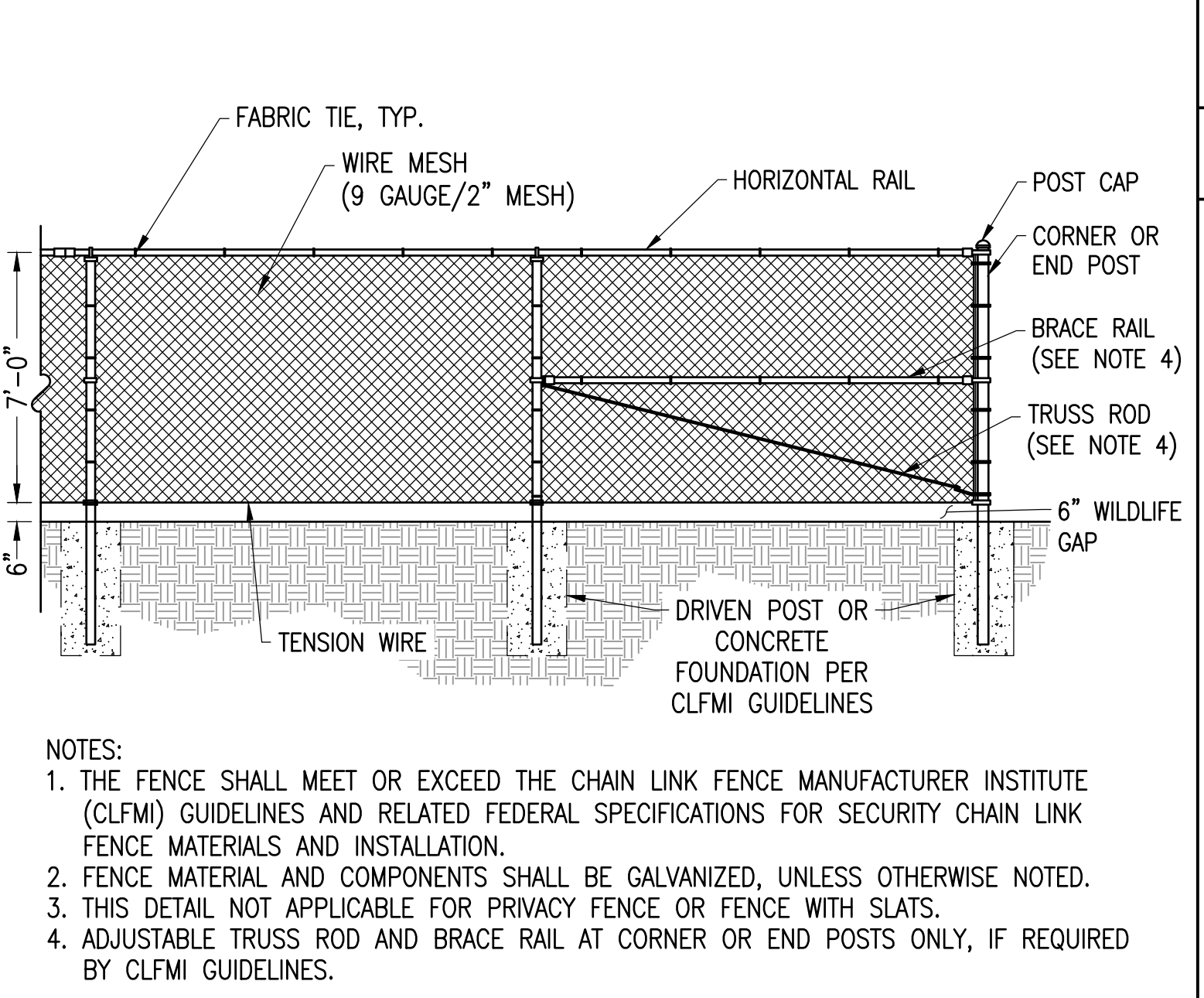
1 GRAVEL ACCESS ROAD
SCALE: NTS
XD_CIVIL_GRAVEL_ROAD_LL 04-30-2019



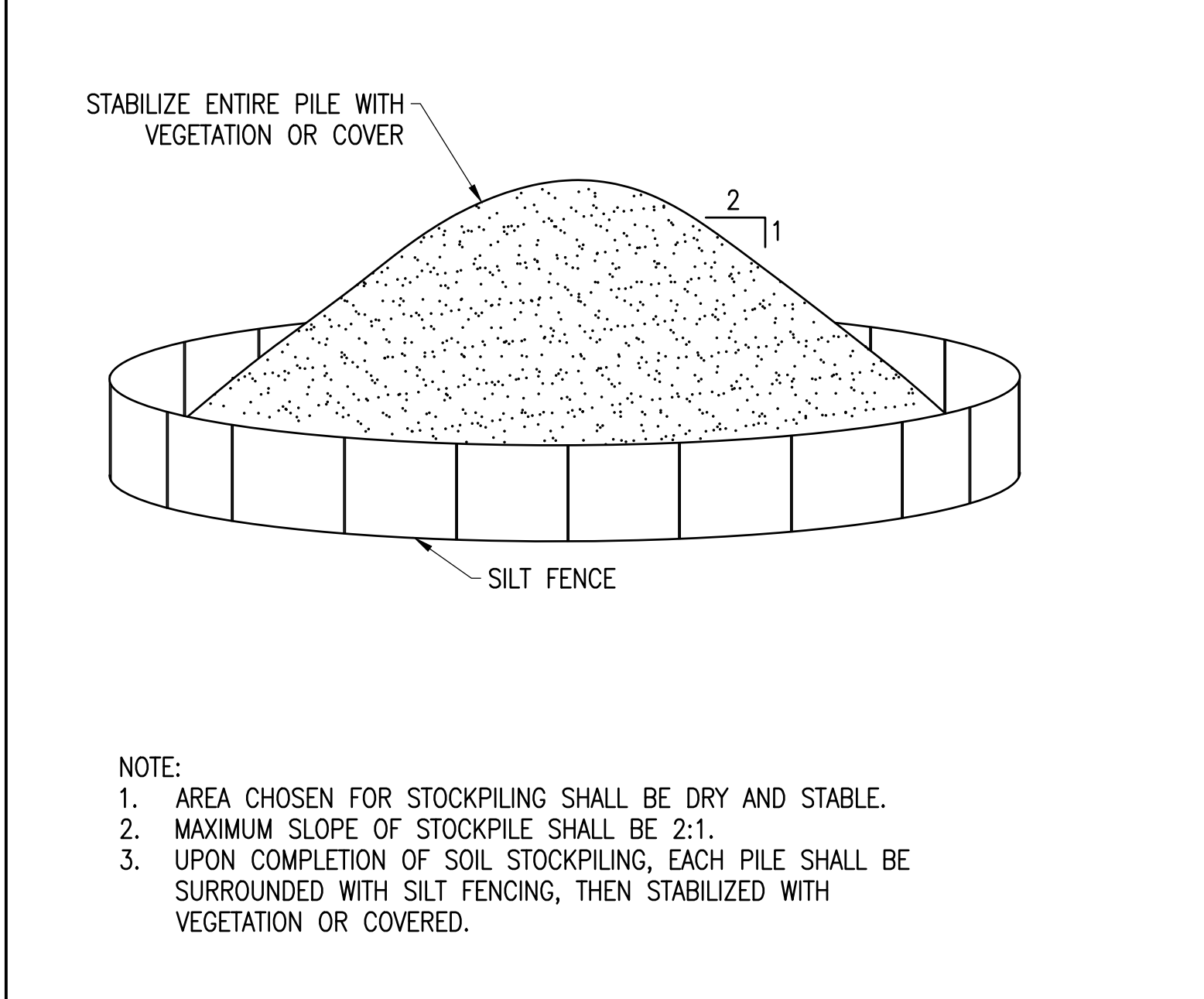
8 VEHICLE GATE WITH WILDLIFE GAP
SCALE: NTS
XD_CIVIL_FENCE_VEHICLE_GATE_7 07-02-2020



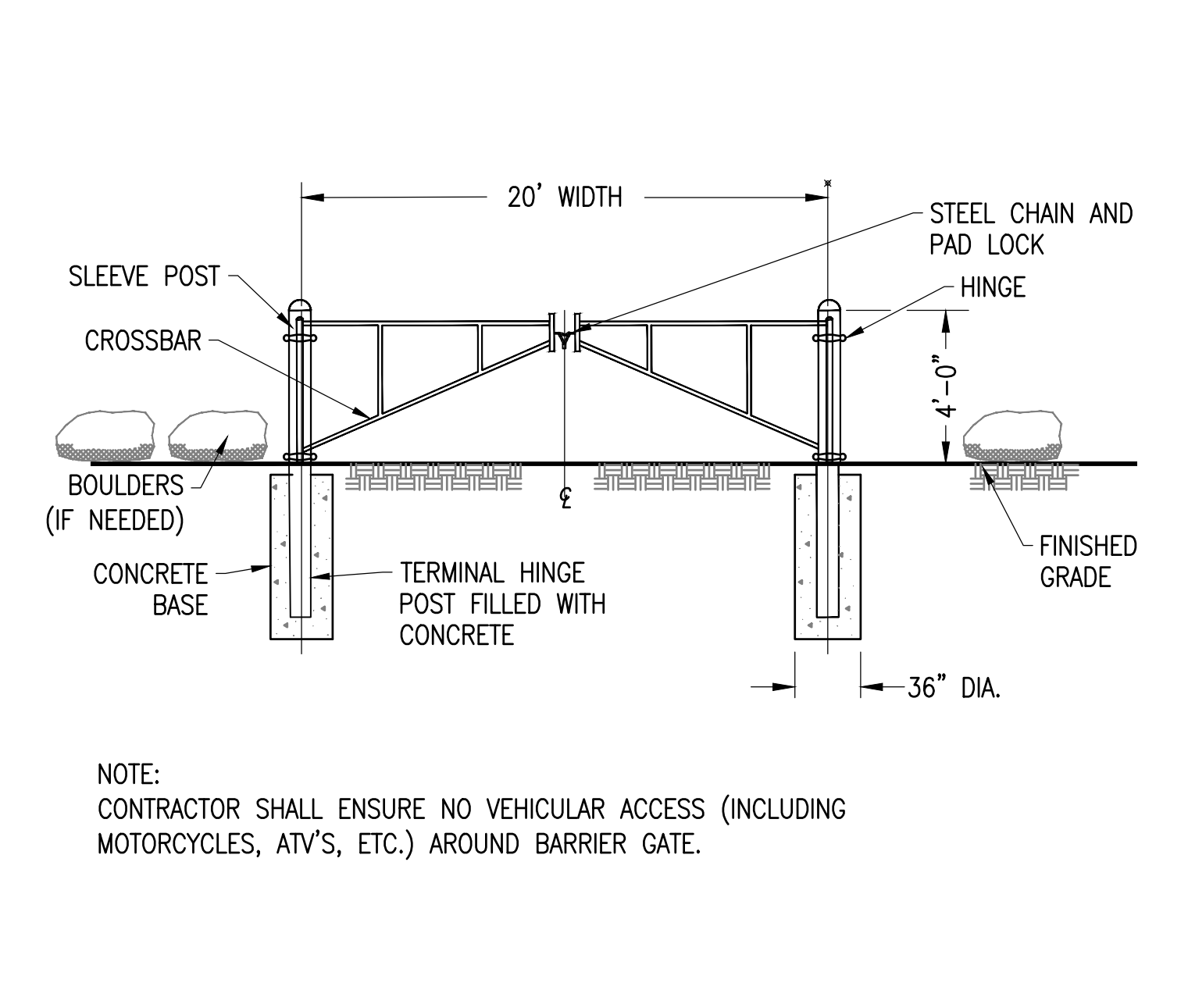
5 CONCRETE WASHOUT BASINS
SCALE: NTS
XD_CIVIL_CONCRETE_WASHOUT_BASINS 07-24-2017



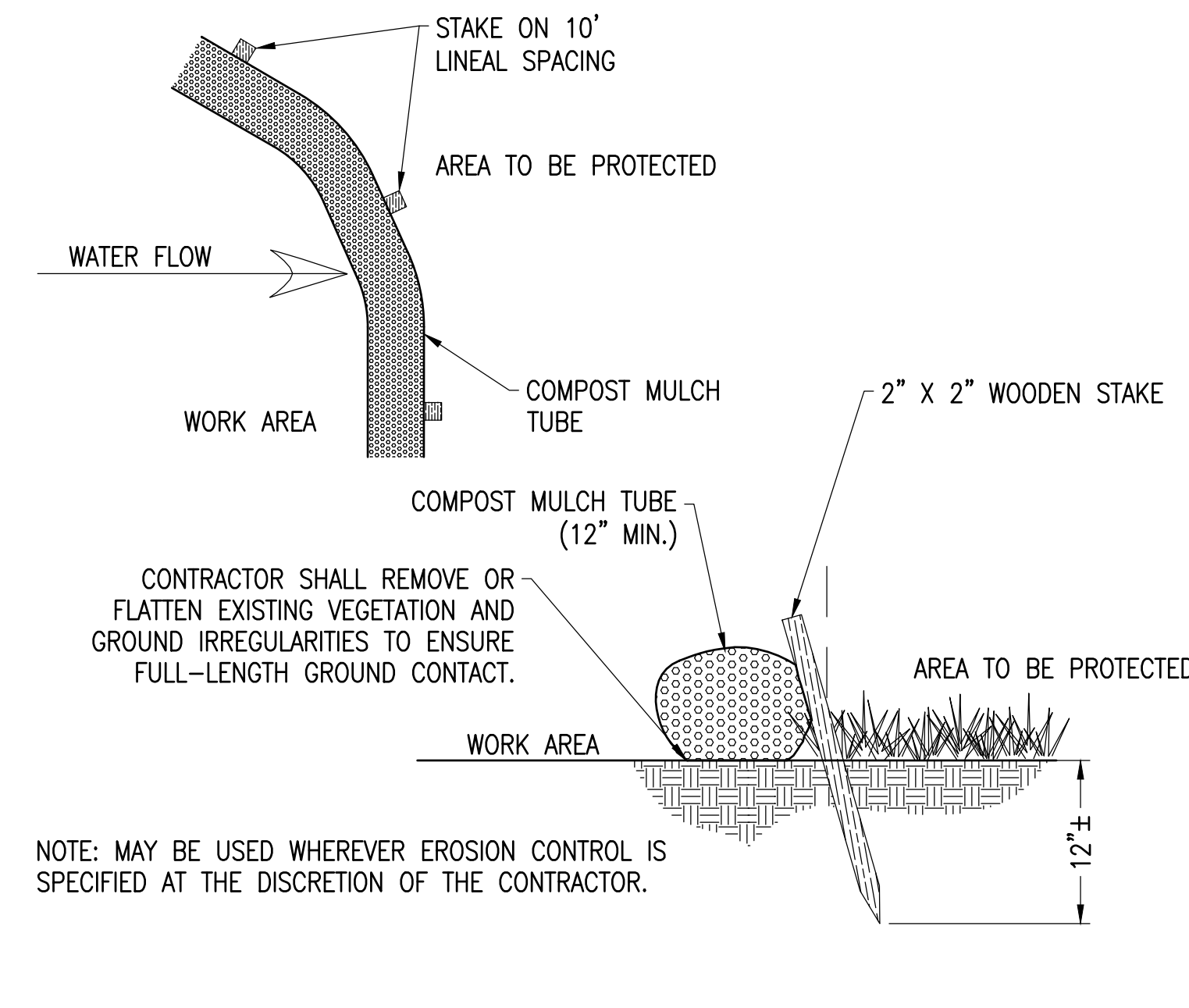
2 CHAIN LINK FENCE WITH WILDLIFE GAP
SCALE: NTS
XD_CIVIL_FENCE_7_CHAIN_LINK_WILDLIFE_GAP 07-02-2020



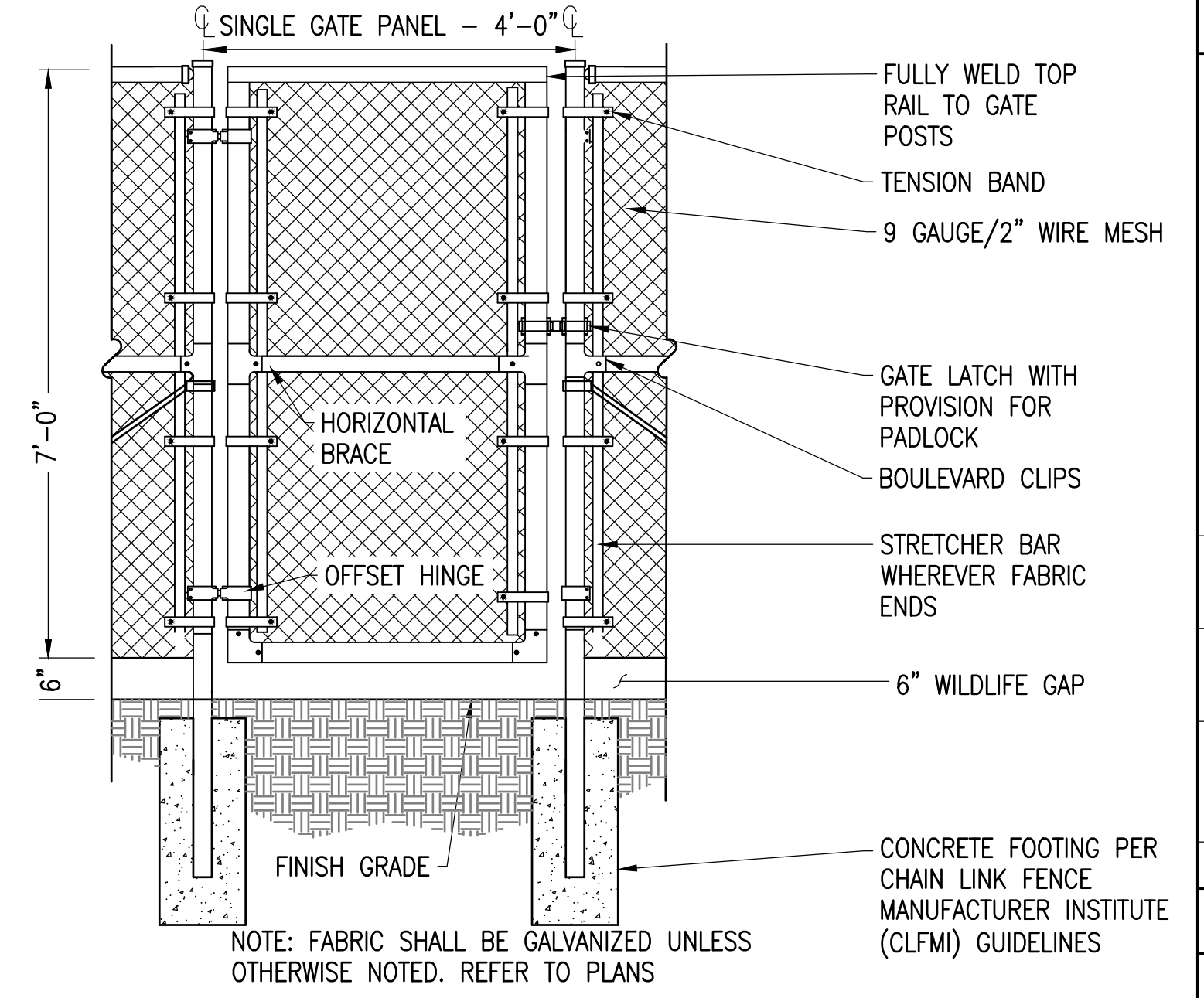
11 STOCKPILE EROSION AND SEDIMENT CONTROL
SCALE: NTS



9 BARRIER GATE
SCALE: NTS
XD_CIVIL_ACCESS_BARRIER_GATE 10-24-2018



6 MULCH TUBE
SCALE: NTS



3 4' ACCESS GATE WITH WILDLIFE GAP
SCALE: NTS
XD_CIVIL_SITE_CONSTRUCTION_4_WALK_THROUGH_GATE 07-25-2017

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BRANDON L. SMITH
CIVIL ENGINEER
LICENSE NO. 85838
EXPIRES 06/14/2022

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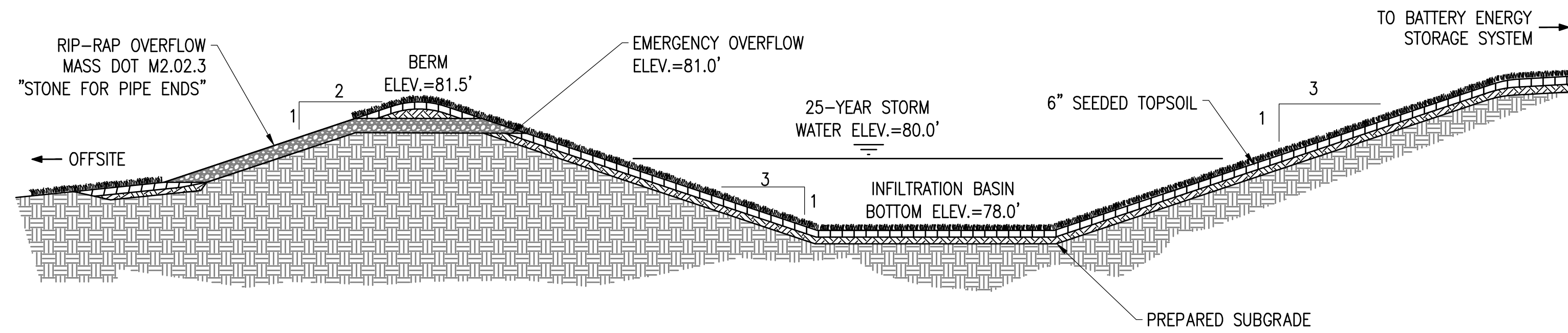
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SCALE: 1" = 12' (WHEN PLOTTED)
ARCH: 1/4" = 1'

C-5.0
CIVIL DETAILS

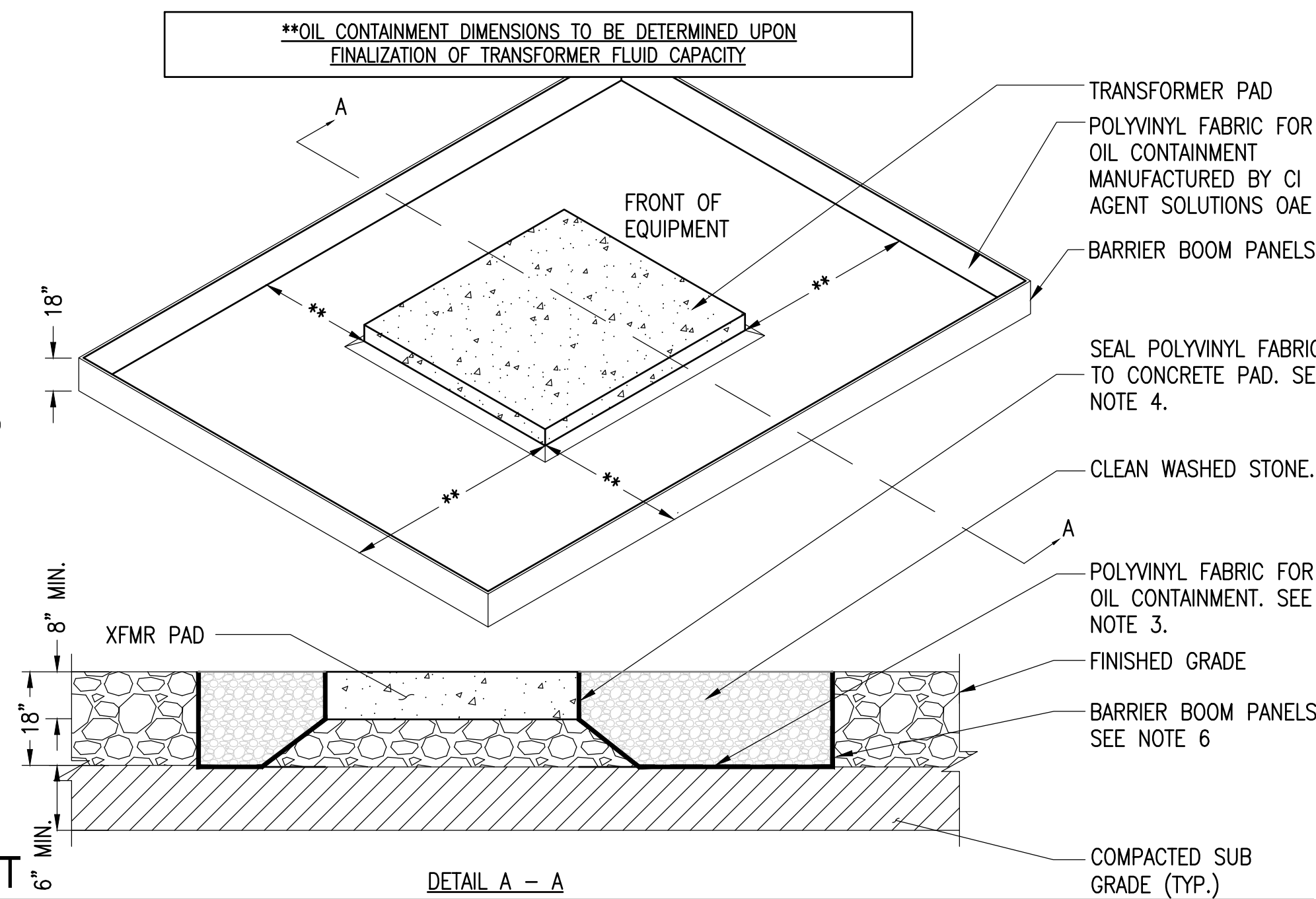
NOTES:
1. ALL DIMENSIONS TO BE COORDINATED WITH PLANS



7 INFILTRATION BASIN

SCALE: NTS
XD_CIVIL_DRAINAGE_INFILTRATION_BASIN_NO PIPE 12-08-2020

- NOTES:
- PRIOR TO INSTALLATION, SUBCONTRACTOR SHALL CONTACT CONTAINMENT DISTRIBUTOR, SO THAT A REPRESENTATIVE CAN BE ON SITE DURING CONSTRUCTION. DOCUMENTING INSTALLATION IS REQUIRED TO VALIDATE OIL CONTAINMENT PROTECTION POLICY.
 - EXCAVATION AREA TO BE MINIMUM OF 1' LARGER THAN SIZE OF CONTAINMENT UNIT AND MINIMUM OF 6" DEEPER THAN THE FLOOR OF THE CONTAINMENT UNIT.
 - CONTRACTOR SHALL SEAM POLYVINYL FABRIC WITH ADHESIVE AND INSTALL IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 - AFTER ALL FLOOR SEAMING IS COMPLETE, SUBCONTRACTOR SHALL SEAL POLYVINYL LINER TO CONCRETE PAD USING BENTONITE GRANULAR CLAY IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 - SUBCONTRACTOR SHALL SEAL ALL CONDUIT PENETRATIONS WITH FIELD CONSTRUCTED POLYVINYL BOOTS AND BRIMS PER MANUFACTURERS SPECIFICATIONS. A SINGLE BOOT SHALL BE PLACED AROUND GROUPS OF CONDUIT.
 - SUBCONTRACTOR SHALL PROVIDE 2" WOODEN STAKES TO SUPPORT THE CONTAINMENT WALLS. INSTALLATION OF OUTSIDE BARRIER BOOM USING STAKES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - PRIOR TO BACKFILLING THE FABRIC THE CONTRACTOR SHALL NOTIFY THE BORREGO SOLAR CIVIL ENGINEER AND PROVIDE SUBMITTAL FOR BACKFILL MATERIAL. PROVIDE A MINIMUM OF 48 HOURS NOTICE.



8 SECONDARY SPILL CONTAINMENT

SCALE: NTS
XD_ELEC_TRANSFORMER OIL CONTAINMENT SINGLE LARGE 2020-7-1

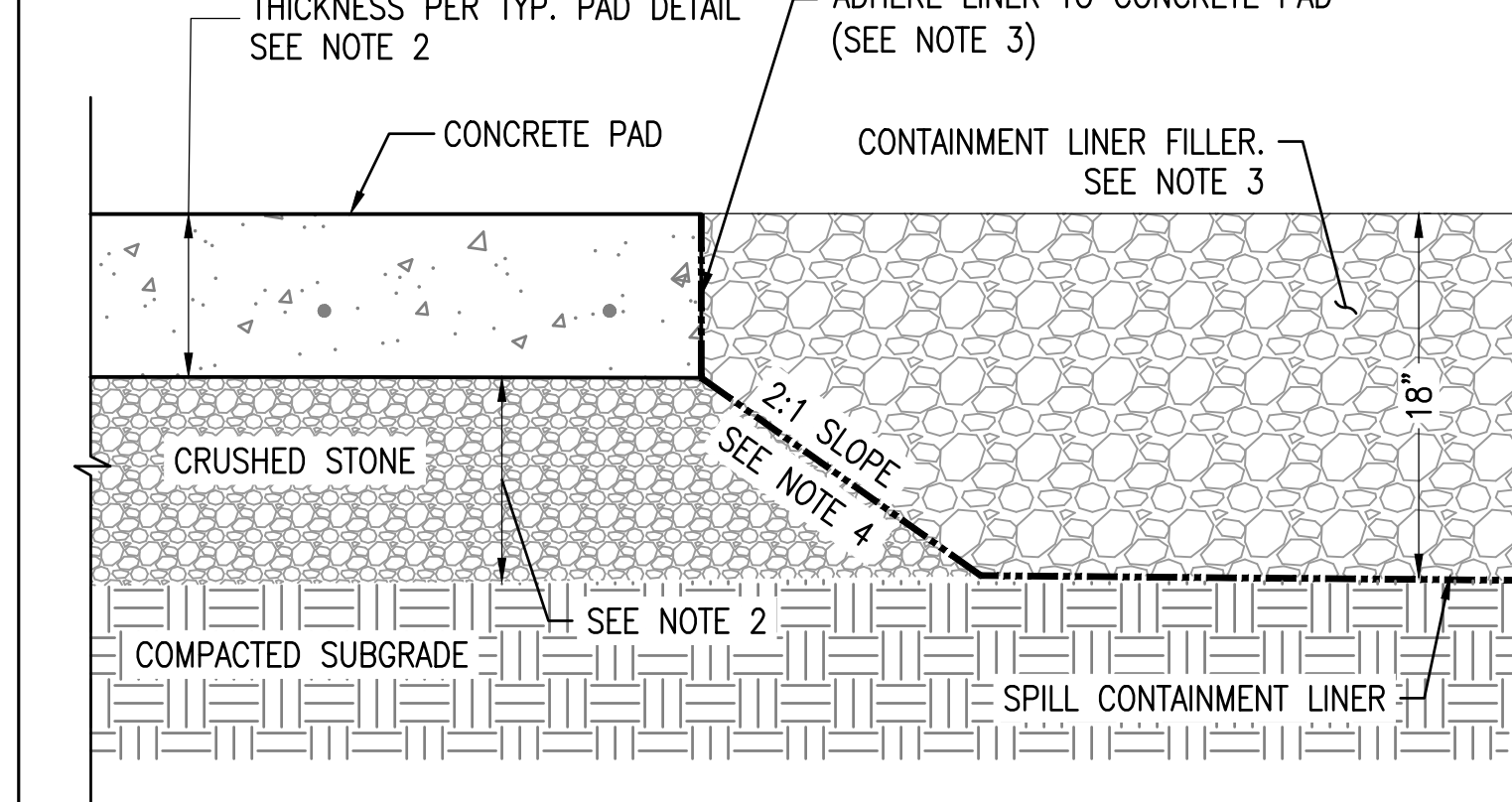
LARGE

SECONDARY CONTAINMENT IS ONE METHOD FOR COMPLIANCE WITH SPCC REGULATIONS (40 CFR PART 112). ALTERNATIVE MEASURES AND SELF-CERTIFICATION OF THE SPCC PLAN MAY BE AVAILABLE UNDER SECTION 112.7(k)

4 GRASS LINED SWALE

SCALE: NTS
XD_CIVIL_DRAINAGE_GRASS_SWALE 07-12-21

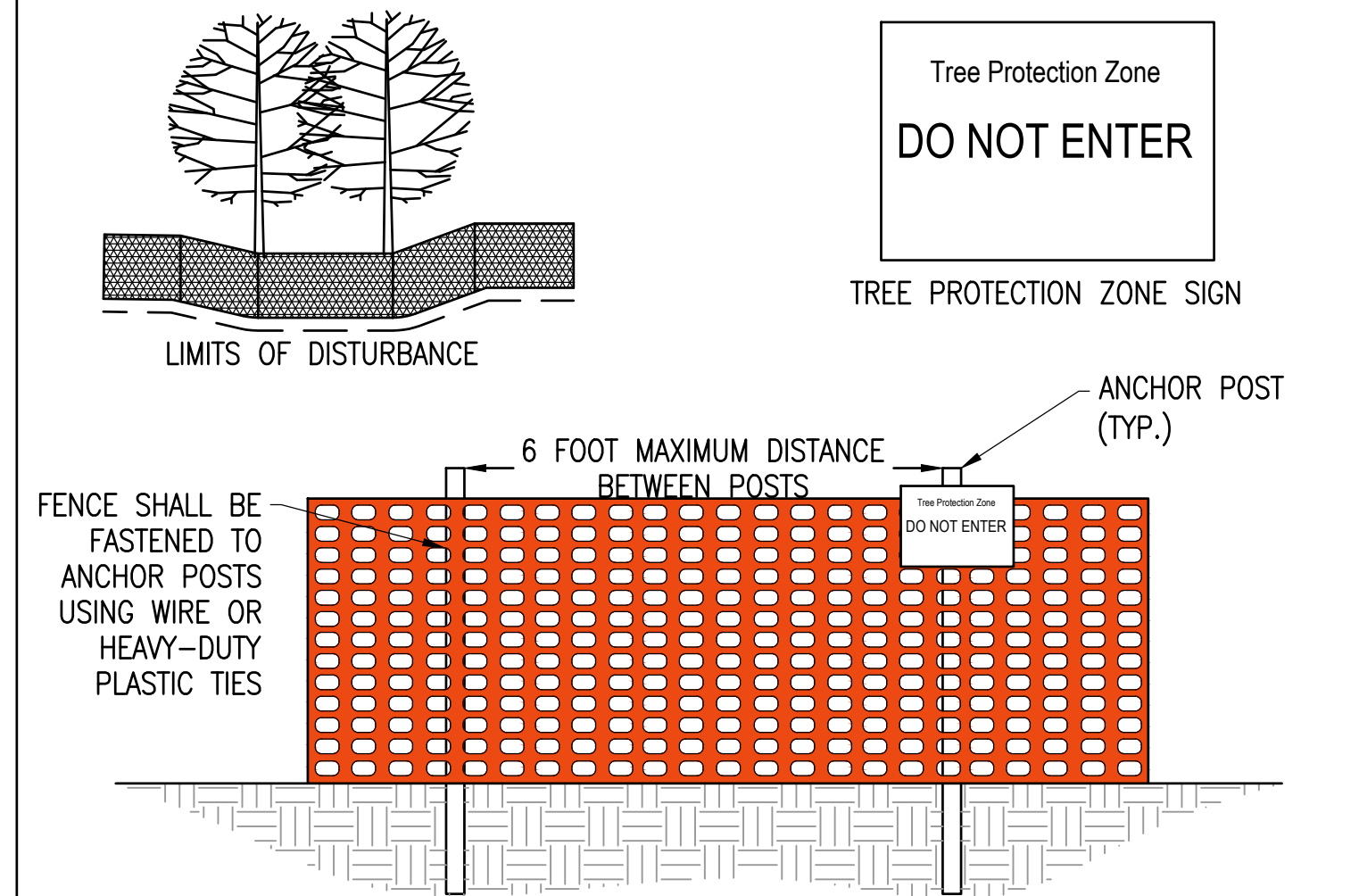
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5 SECONDARY SPILL CONTAINMENT LINER

SCALE: NTS
XD_STRUCT_EQUIPMENT_PAD_SPILL_CONTAINMENT 2019-12-13

- NOTES:
- THIS DETAIL APPLICABLE AT EQUIPMENT PADS WITH SPILL CONTAINMENT ONLY.
 - REFER TO CONCRETE EQUIPMENT PAD SECTION FOR ADDITIONAL INFORMATION.
 - REFER TO SPILL CONTAINMENT DETAIL(S) ON DRAWINGS BY OTHERS FOR ADDITIONAL INFORMATION.
 - EXCAVATE OUT FROM THE CONCRETE PAD AT A 2:1 (HORIZONTAL TO VERTICAL) SLOPE TO AVOID UNDERMINING EQUIPMENT PAD.



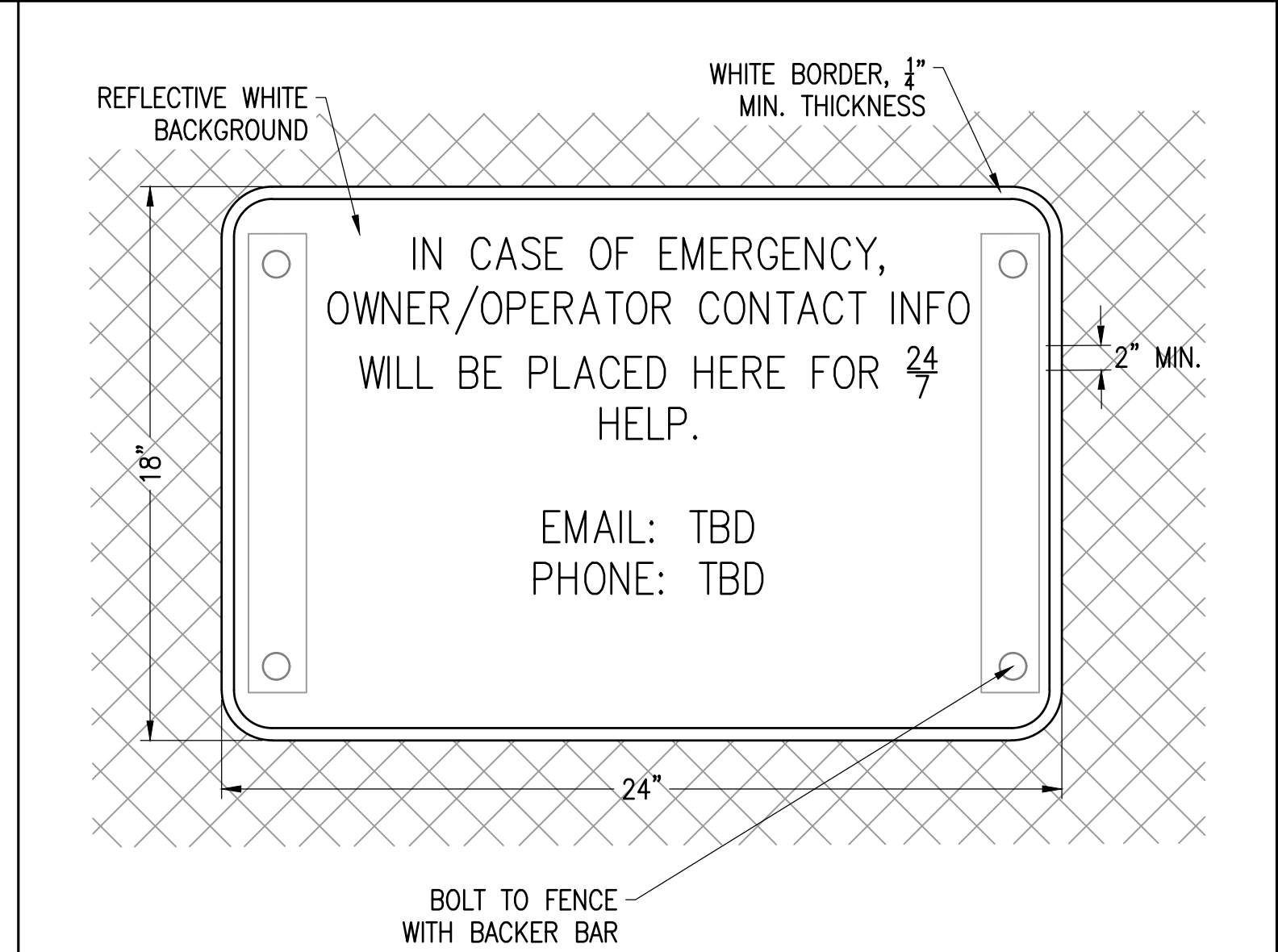
6 TREE PROTECTION FENCING DETAIL

SCALE: N.T.S.

- NOTES:
- FENCING MATERIAL SHALL NOT BE FASTENED OR NAILED TO TREES.
 - FENCE MATERIAL SHALL BE POLYETHYLENE ORANGE, RED, OR YELLOW COLORED HEAVY DUTY WARNING BARRIER FENCE, WITH UV STABILIZER AND MINIMUM OF 5000 P.S.I TENSILE STRENGTH
 - ONE TREE PROTECTION ZONE SIGN SHALL BE POSTED FOR EVERY 25 LINEAR FEET OF TREE PROTECTION FENCE. SIGNS SHALL BE MOUNTED TO ANCHOR POSTS.

1 STAND ALONE LIGHT MOUNTING

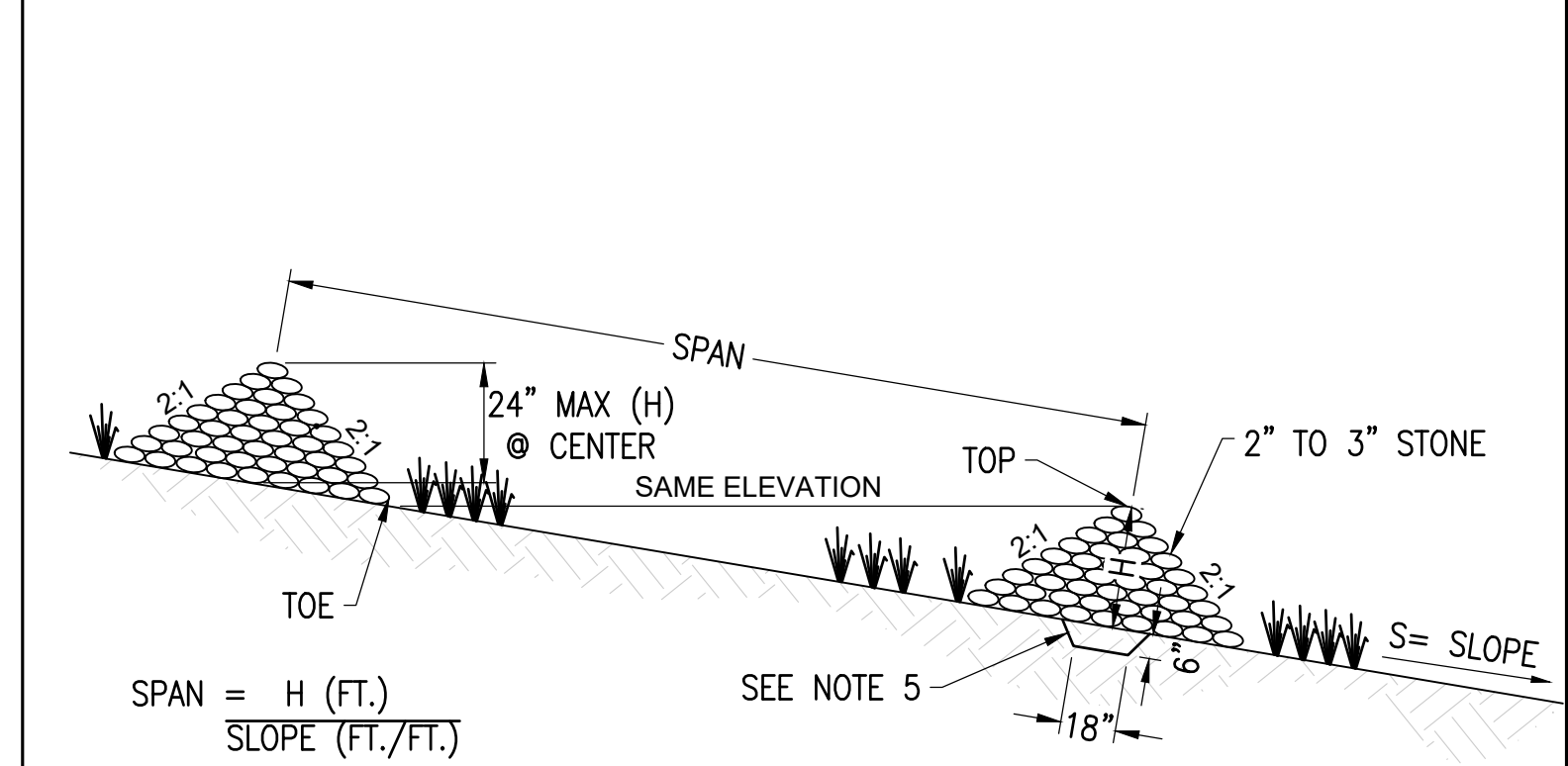
SCALE: NTS
XD_ELEC_STAND_ALONE_LIGHT_MOUNTING 2016-10-17



2 EMERGENCY CONTACT SIGN

SCALE: NTS
XD_CIVIL_SPACING_EMERGENCY 2019-2-22

LOCATED AT VEHICLE GATES



- NOTES:
- MAXIMUM DRAINAGE AREA ≤ 2 ACRES
 - USE MA DOT M.2.01.1 CRUSHED STONE
 - H=24" MAX @ CENTER
 - STONE SHALL BE PLACED ON A FILTER FABRIC FOUNDATION
 - INSTALL 6" DEEP CUT-OFF TRENCH BELOW
 - EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM

3 STONE CHECK DAM

SCALE: N.T.S.
XD_CIVIL_CHECK DAM 08-15-2016

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NOT FOR CONSTRUCTION

BRANDON L. SMITH
CIVIL ENGINEER
08/14/2022

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1320 S STREET
ANDOVER, MA 01810

PROJECT NUMBER:
120-0345

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL	COMMENTS
1	4/12/22	CS	BS	BS	SITE USE PERMIT SET
2	6/14/22	CS	BS	BS	RESPONSE TO PEER REVIEW

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.1
CIVIL DETAILS