



# CITY OF PHILADELPHIA

DEPARTMENT OF COMMERCE  
DIVISION OF AVIATION

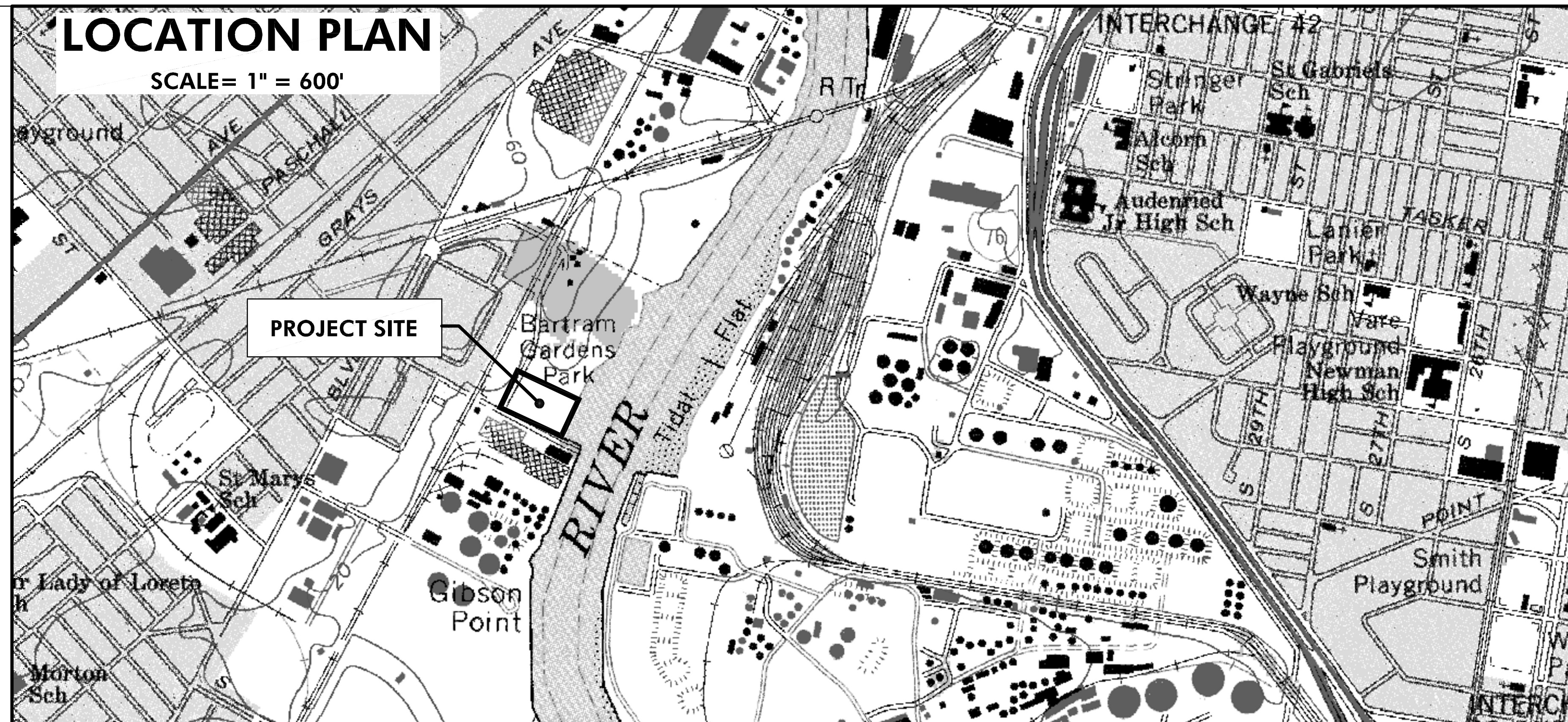


# PHILADELPHIA INTERNATIONAL AIRPORT WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION

BID SET

WORK NO. PHL-1528.18

BID NO. 6956



ENGINEER OF RECORD:

URS CORPORATION DATE

APPROVED FOR BID:

AIRPORT ENGINEERING MANAGER DATE

DEPUTY DIRECTOR OF AVIATION  
OPERATIONS AND FACILITIES DATE

CHIEF EXECUTIVE OFFICER DATE

DESIGN TEAM:

**URS**  
8 PENN CENTER, 21ST FLOOR  
1628 JOHN F. KENNEDY BLVD  
PHILADELPHIA, PA 19103  
PHONE: 215-587-9000  
FAX: 215-587-0668

**HUNT ENGINEERING COMPANY**  
22 EAST KING STREET  
MALVERN, PA 19355  
PHONE: 610-644-4600  
FAX: 610-644-2466

REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
0	ISSUED FOR BID	01/24/13

WETLAND MITIGATION FOR  
TAXIWAY KILO EXTENSION  
BID SET

COVER SHEET

JOB NO: 20835660 CHECKED: DG  
DRAWN: JRJ DATE: 2013/01/11

WORK NO. PHL-1528.18  
DRAWING NO.

G0.00

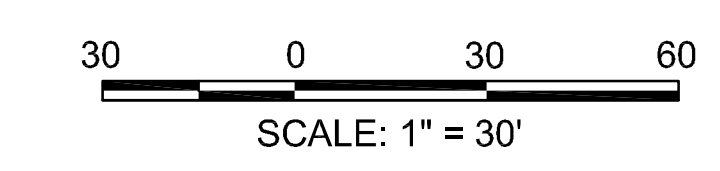




**LEGEND FOR EXISTING FEATURES:**

	CHAIN-LINK FENCE
	INDEX CONTOURS
	CONTOURS
	TC TOP BACK OF CURB
	BC BOTTOM OF CURB
	WT TOP OF WALL
	WB BOTTOM OF WALL
	X 12.34 SPOT ELEVATION
	UTILITY POLE
	SIGN
	INLET
	WATER VALVE
	GAS VALVE
	BOLLARD
	MISC. VALVE
	DECIDUOUS TREE WITH SIZE
	LIGHT POLE
	TIDAL WETLAND
	SOIL TYPE LINE
	Soil Type Label
	PROPERTY LINE
	MONITORING WELL
	SURVEY CONTROL POINT

- NOTES:**
- EXISTING CONDITIONS SHOWN HEREON BASED ON SURVEY COMPLETED BY HUNT ENGINEERING COMPANY IN MARCH 2012.
  - HORIZONTAL AND VERTICAL CONTROL POINTS AS SHOWN PROVIDED BY HUNT ENGINEERING COMPANY ON JANUARY 24, 2013.
  - ALL WORK WILL BE CONDUCTED IN PHILADELPHIA COUNTY, PENNSYLVANIA.
  - THE RECEIVING STREAM FOR THIS PROJECT IS THE SCHUYLKILL RIVER. THE CHAPTER 93 DESIGNATION IS WWF (WARM WATER FISHES).



**PHL PHILADELPHIA INTERNATIONAL AIRPORT**

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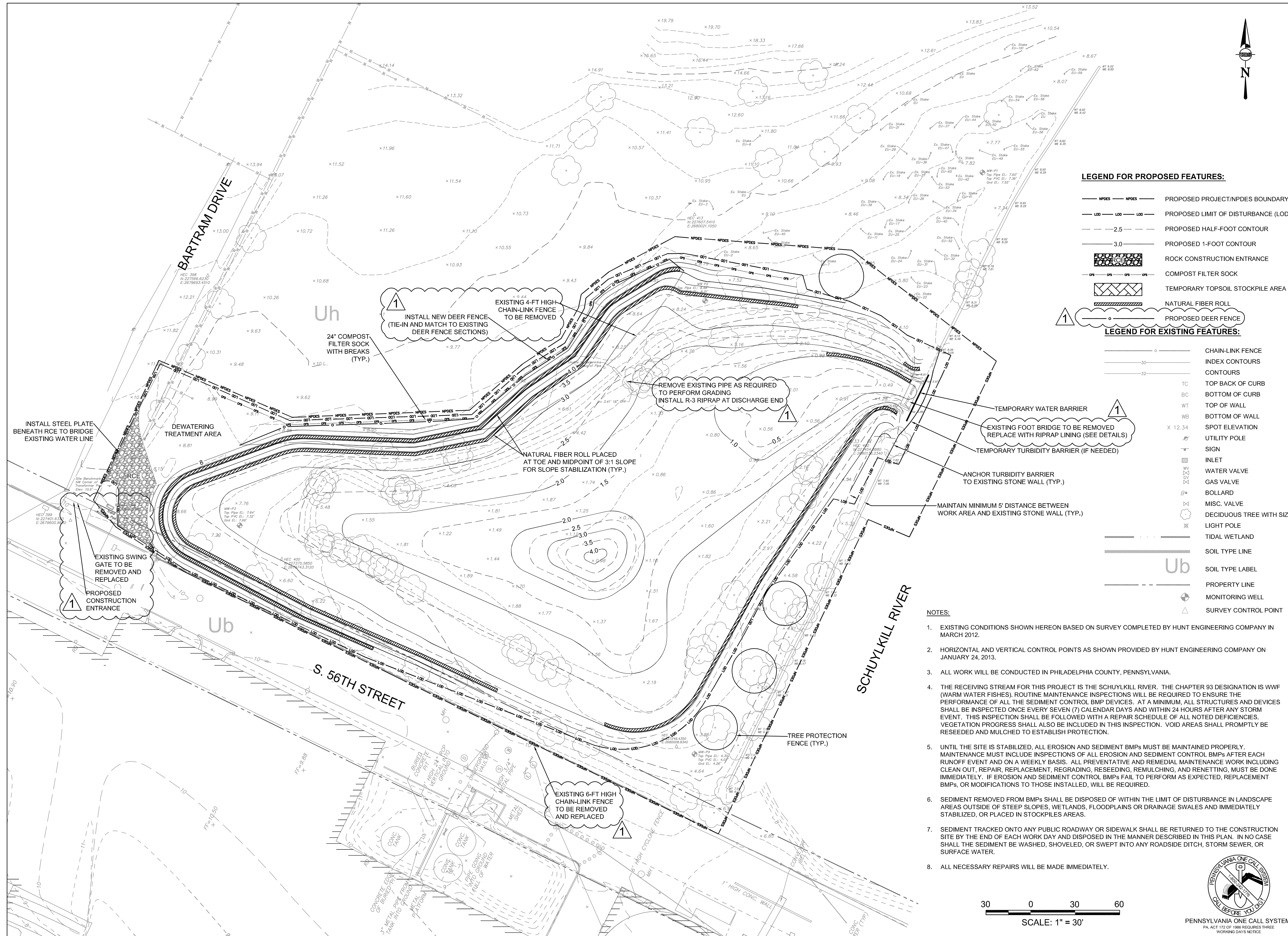
**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**EXISTING CONDITIONS**

JOB NO: 20835660 CHECKED: DG  
DRAWN: JRJ DATE: 2013/01/14  
WORK NO. PHL-1528.18  
DRAWING NO. C1.01

PA. ACT 172 OF 1988 REQUIRES THREE WORKING DAYS NOTICE

SHEET NO. 3 of 10



**LEGEND FOR PROPOSED FEATURES:**

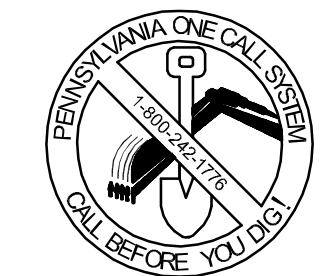
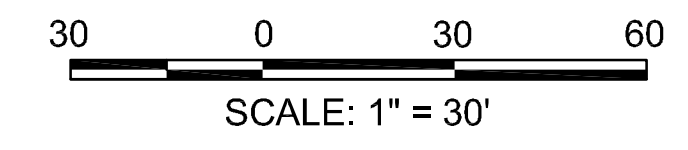
- NPDES — NPDES — PROPOSED PROJECT/NPDES BOUNDARY
- LOD — LOD — PROPOSED LIMIT OF DISTURBANCE (LOD)
- - - 2.5 - - - PROPOSED HALF-FOOT CONTOUR
- - - 3.0 - - - PROPOSED 1-FOOT CONTOUR
- [Pattern] ROCK CONSTRUCTION ENTRANCE
- [Pattern] COMPOST FILTER SOCK
- [Pattern] TEMPORARY TOPSOIL STOCKPILE AREA
- [Pattern] NATURAL FIBER ROLL
- [Symbol] PROPOSED DEER FENCE

**LEGEND FOR EXISTING FEATURES:**

- [Symbol] CHAIN-LINK FENCE
- [Symbol] INDEX CONTOURS
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- TC TOP BACK OF CURB
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- [Symbol] TIDAL WETLAND
- [Symbol] SOIL TYPE LINE
- Ub SOIL TYPE LABEL
- [Symbol] PROPERTY LINE
- [Symbol] MONITORING WELL
- [Symbol] SURVEY CONTROL POINT

**NOTES:**

1. EXISTING CONDITIONS SHOWN HEREON BASED ON SURVEY COMPLETED BY HUNT ENGINEERING COMPANY IN MARCH 2012.
2. HORIZONTAL AND VERTICAL CONTROL POINTS AS SHOWN PROVIDED BY HUNT ENGINEERING COMPANY ON JANUARY 24, 2013.
3. ALL WORK WILL BE CONDUCTED IN PHILADELPHIA COUNTY, PENNSYLVANIA.
4. THE RECEIVING STREAM FOR THIS PROJECT IS THE SCHUYLKILL RIVER. THE CHAPTER 93 DESIGNATION IS WWF (WARM WATER FISHES). ROUTINE MAINTENANCE INSPECTIONS WILL BE REQUIRED TO ENSURE THE PERFORMANCE OF ALL THE SEDIMENT CONTROL BMP DEVICES. AT A MINIMUM, ALL STRUCTURES AND DEVICES SHALL BE INSPECTED ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT. THIS INSPECTION SHALL BE FOLLOWED WITH A REPAIR SCHEDULE OF ALL NOTED DEFICIENCIES. VEGETATION PROGRESS SHALL ALSO BE INCLUDED IN THIS INSPECTION. VOID AREAS SHALL PROMPTLY BE RESEEDING AND MULCHED TO ESTABLISH PROTECTION.
5. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE DONE IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS TO THOSE INSTALLED, WILL BE REQUIRED.
6. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF WITHIN THE LIMIT OF DISTURBANCE IN LANDSCAPE AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN STOCKPILES AREAS.
7. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
8. ALL NECESSARY REPAIRS WILL BE MADE IMMEDIATELY.



PENNSYLVANIA ONE CALL SYSTEM  
PA ACT 172 OF 1988 REQUIRES THREE WORKING DAYS NOTICE

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URS CORPORATION DATE

APPROVED FOR BID:

AIRPORT ENGINEERING MANAGER DATE

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**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**PROPOSED GRADING**

JOB NO: 20835660 CHECKED: DG

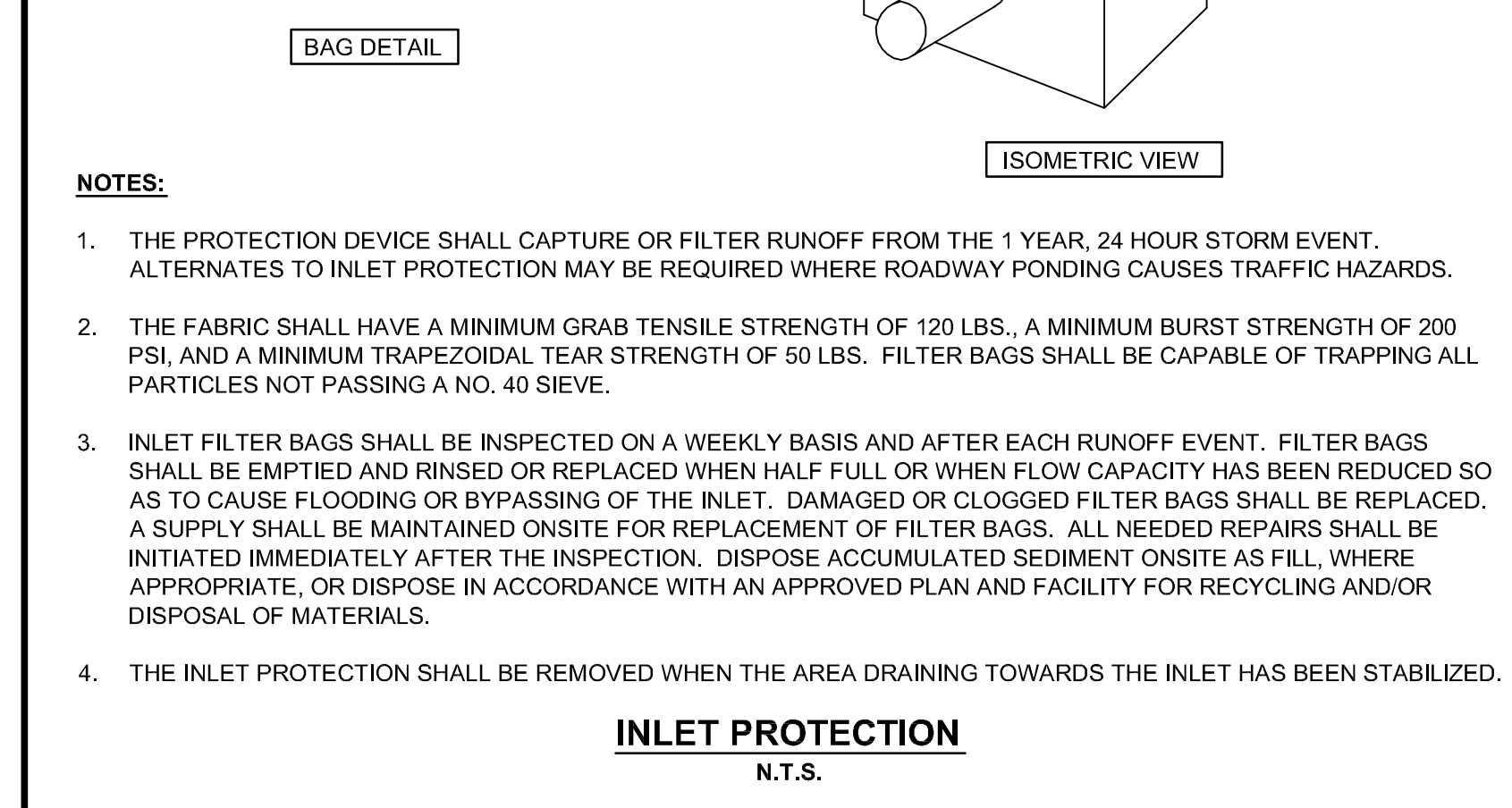
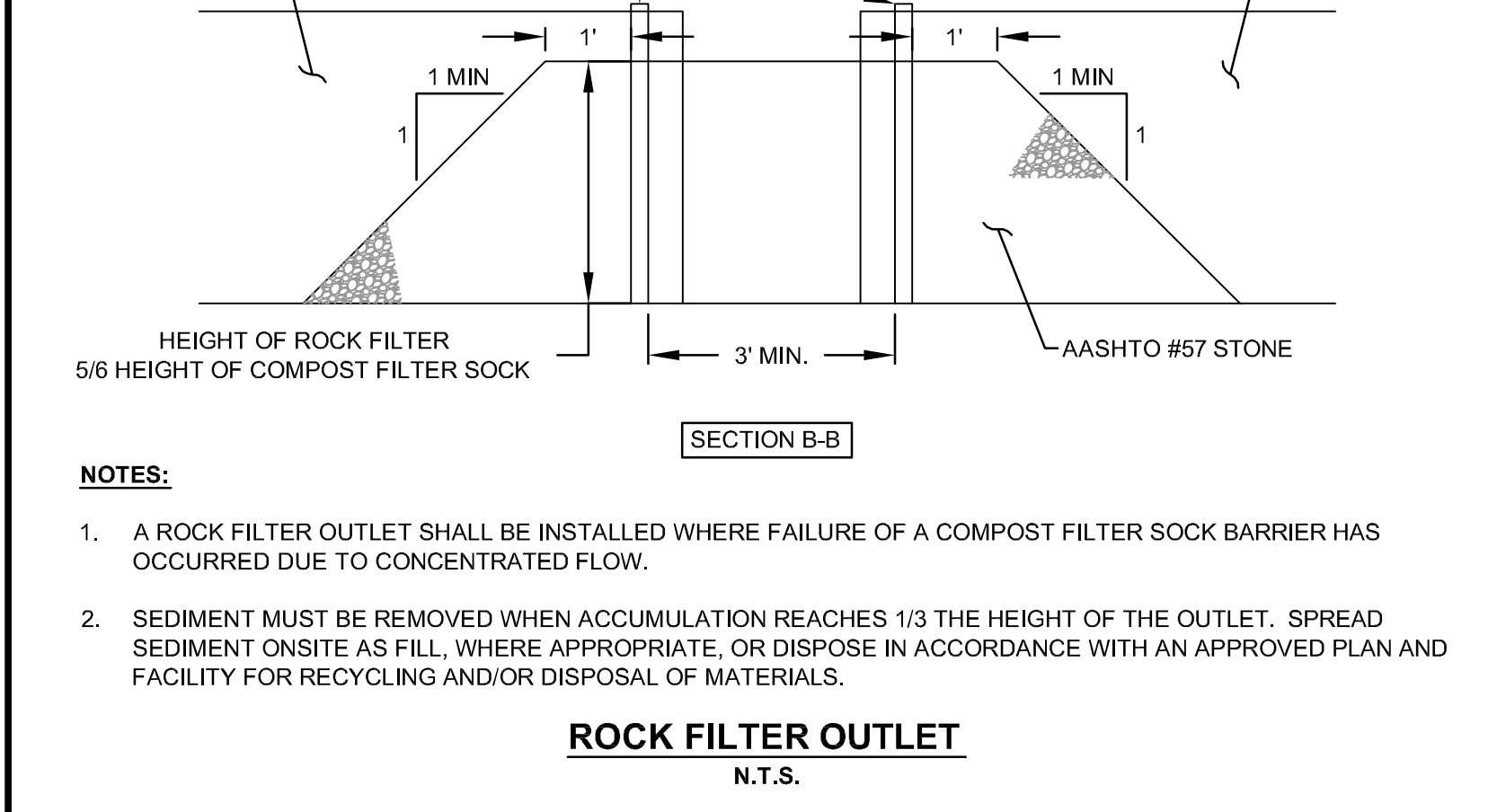
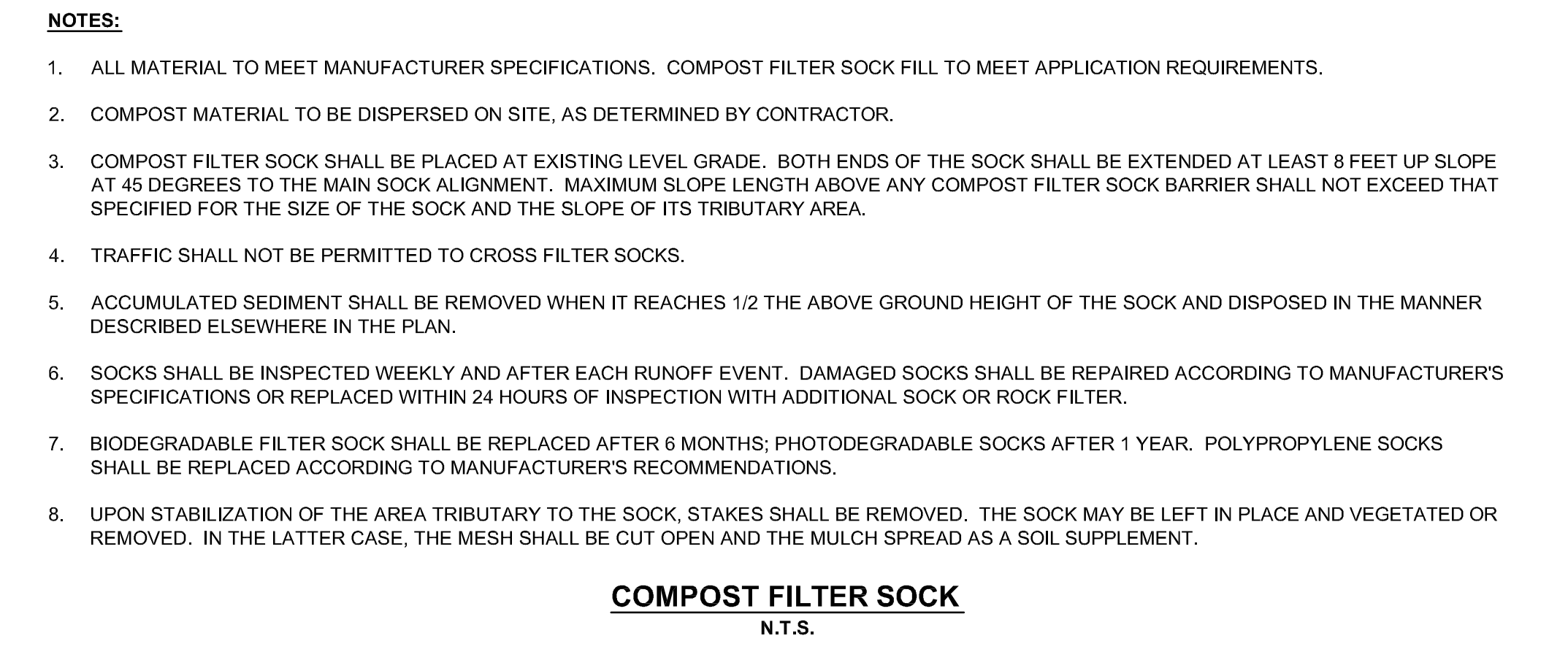
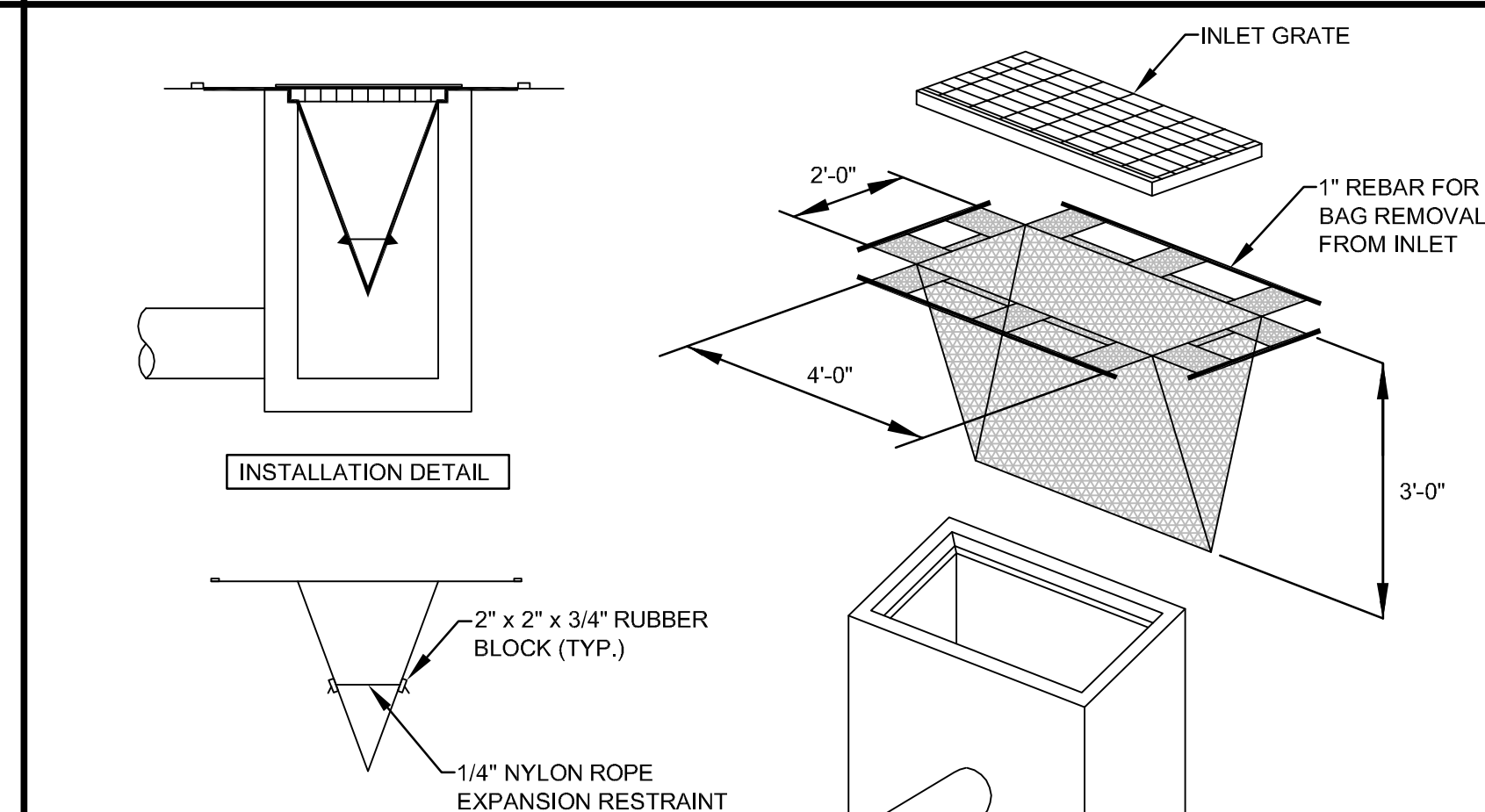
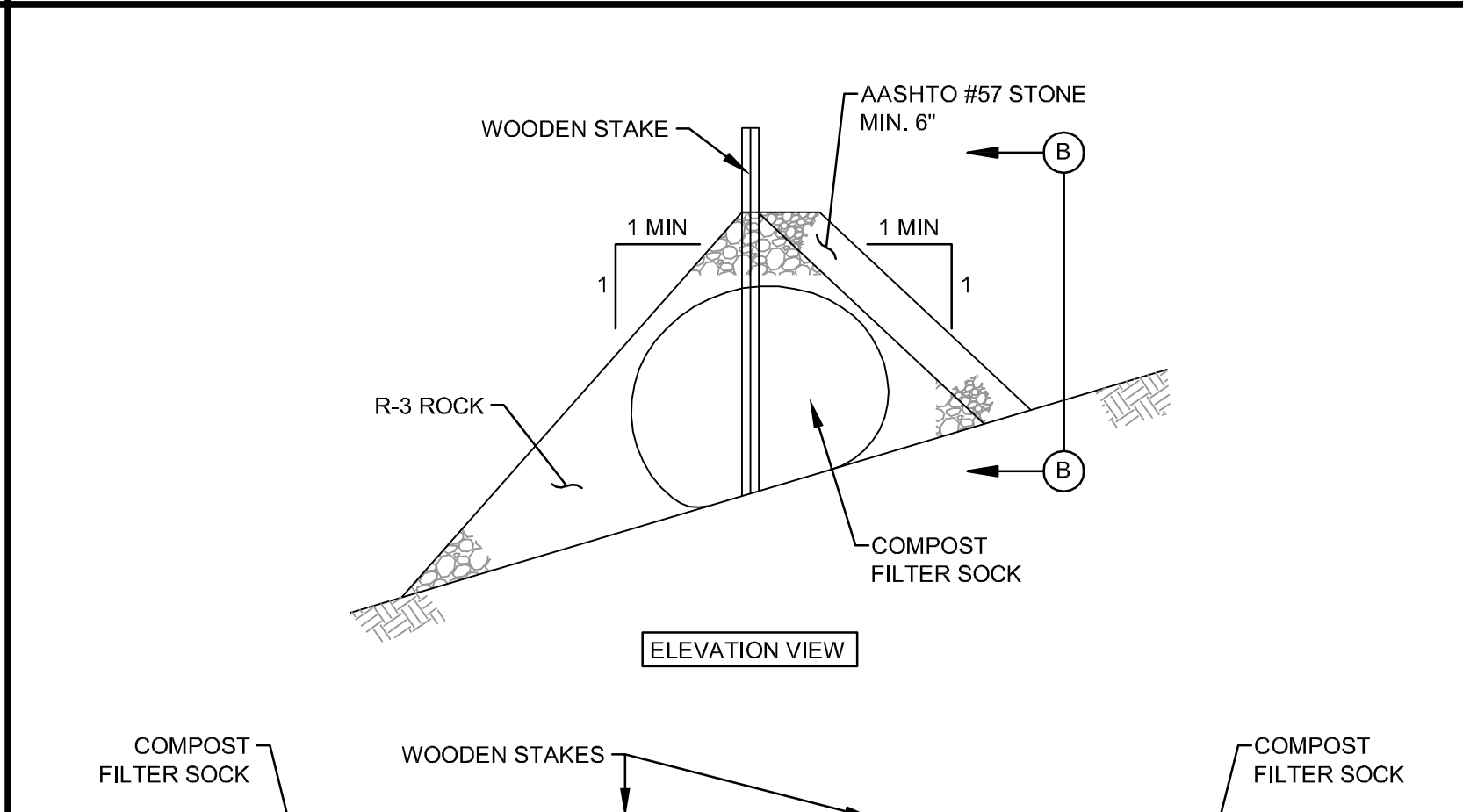
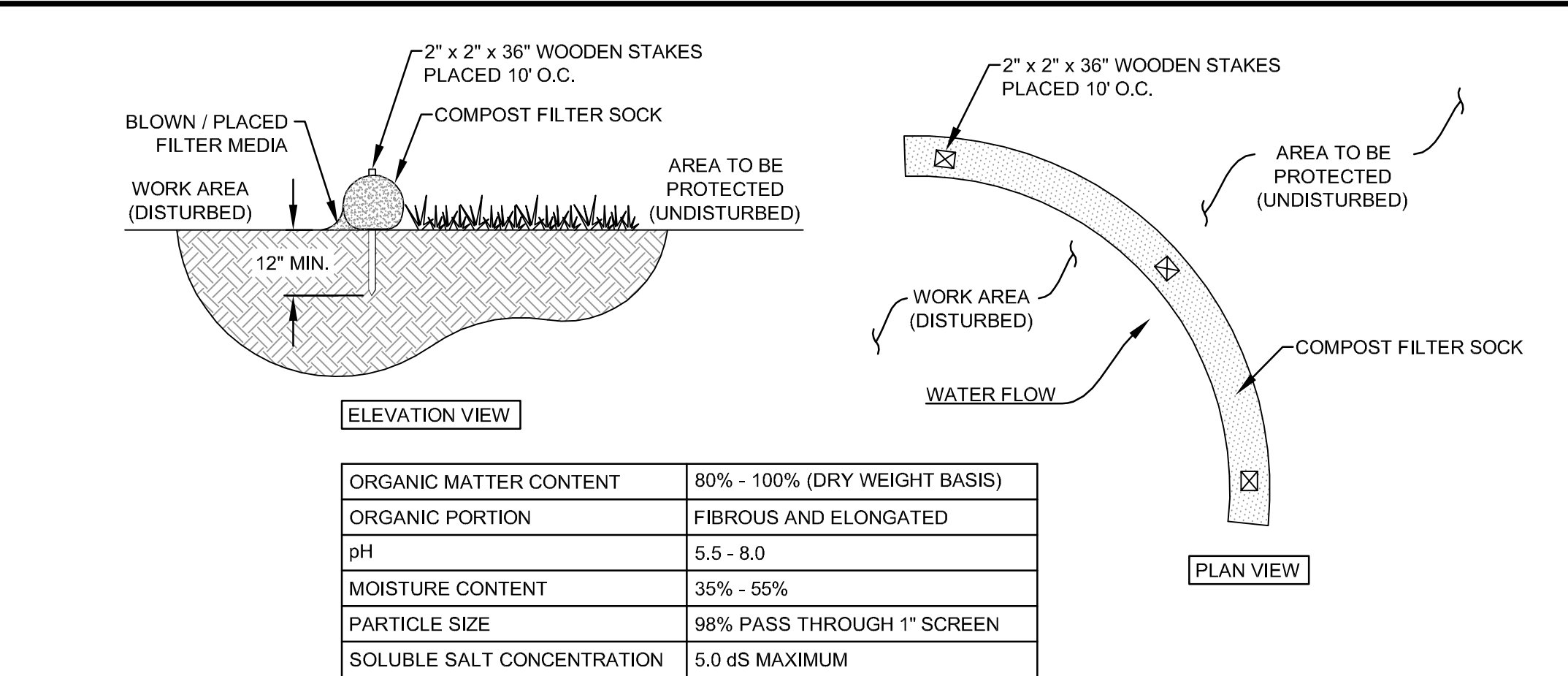
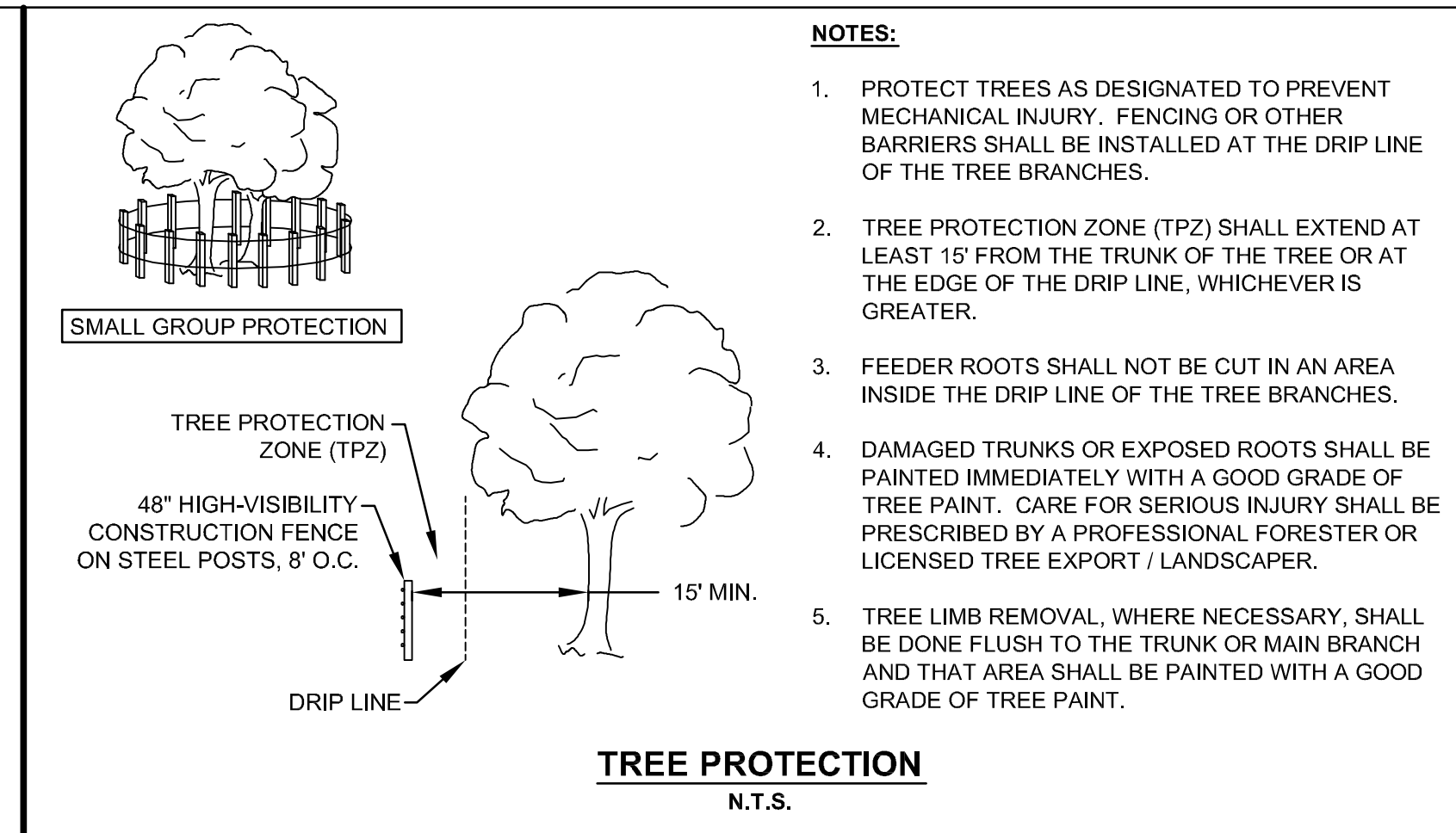
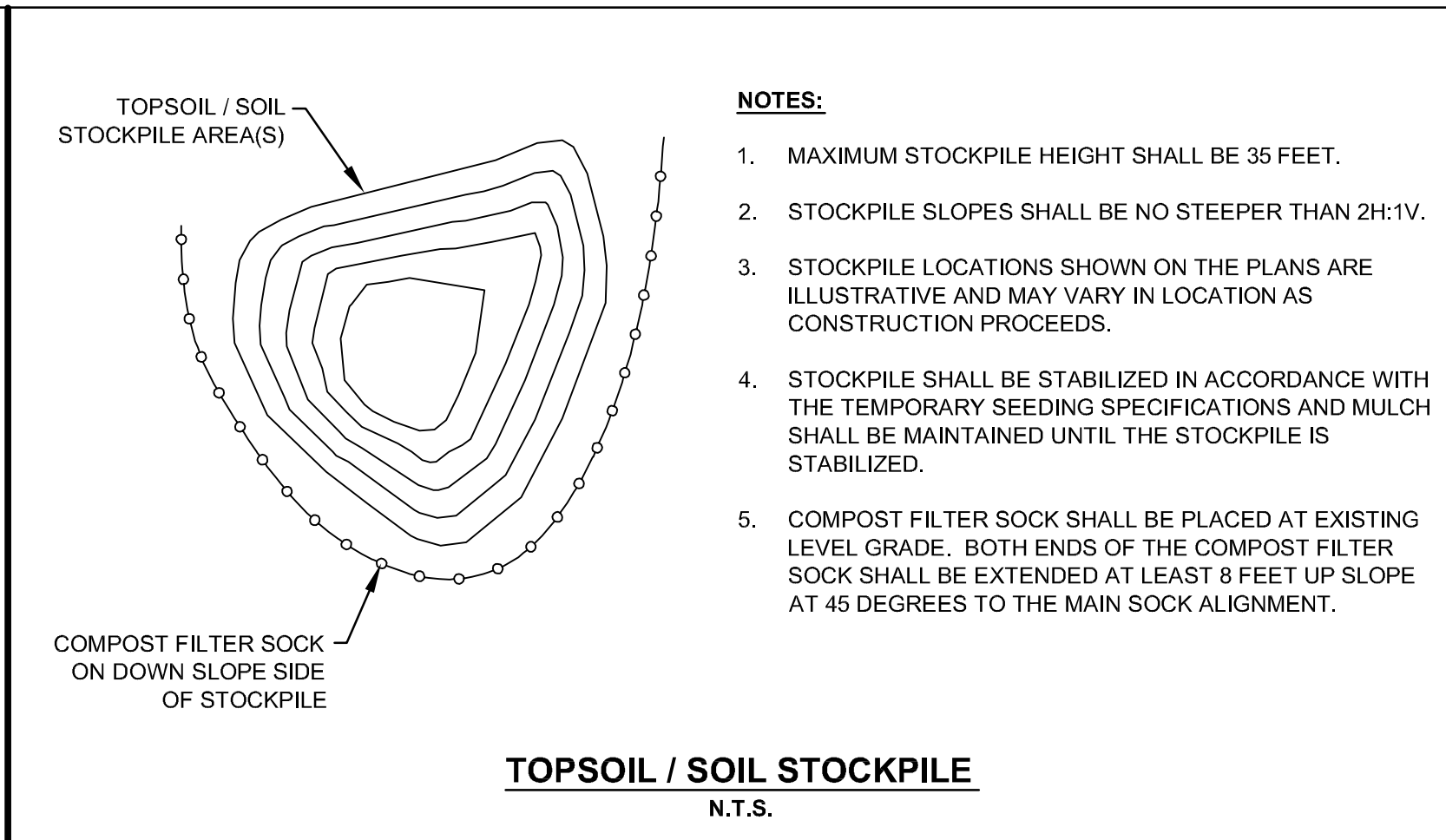
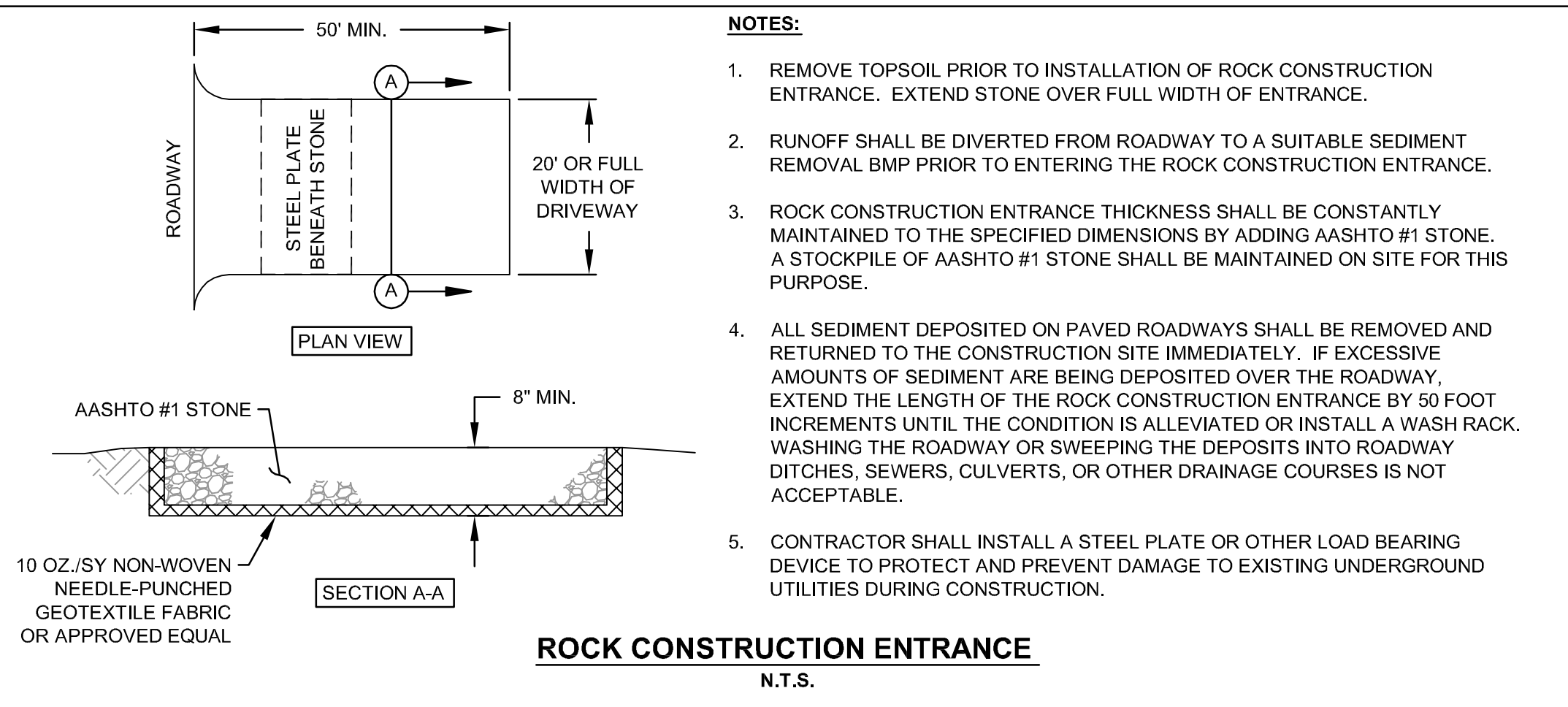
DRAWN: JRJ DATE: 2013/01/14

WORK NO. PHL-1528.18

DRAWING NO.

**C1.02**

SHEET NO. 4 of 10



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**URS CORPORATION** DATE

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**AIRPORT ENGINEERING MANAGER** DATE

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**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**TYPICAL DETAILS**

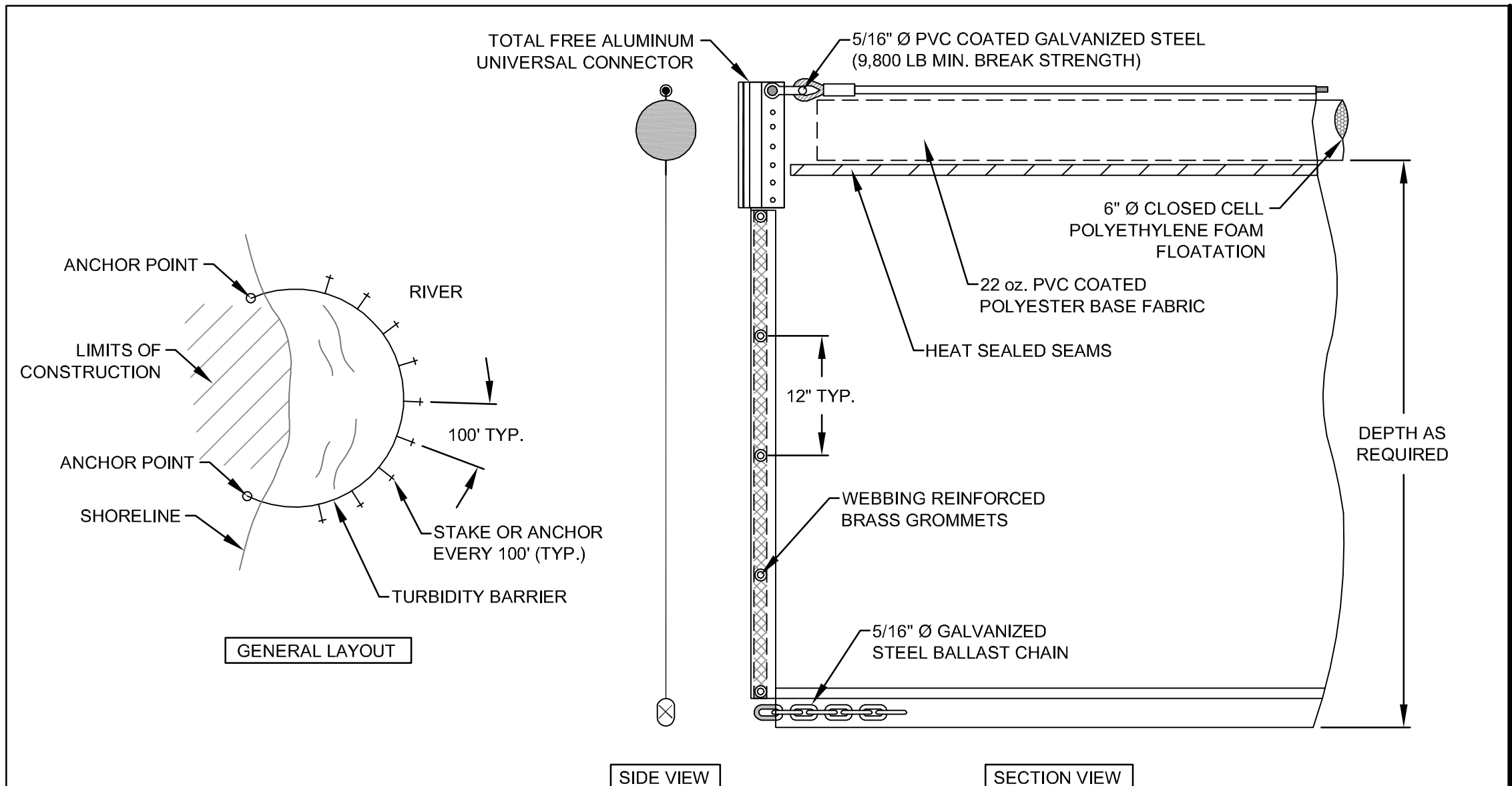
**JOB NO: 20835660** **CHECKED: DG**

**DRAWN: JRJ** **DATE: 2013/01/14**

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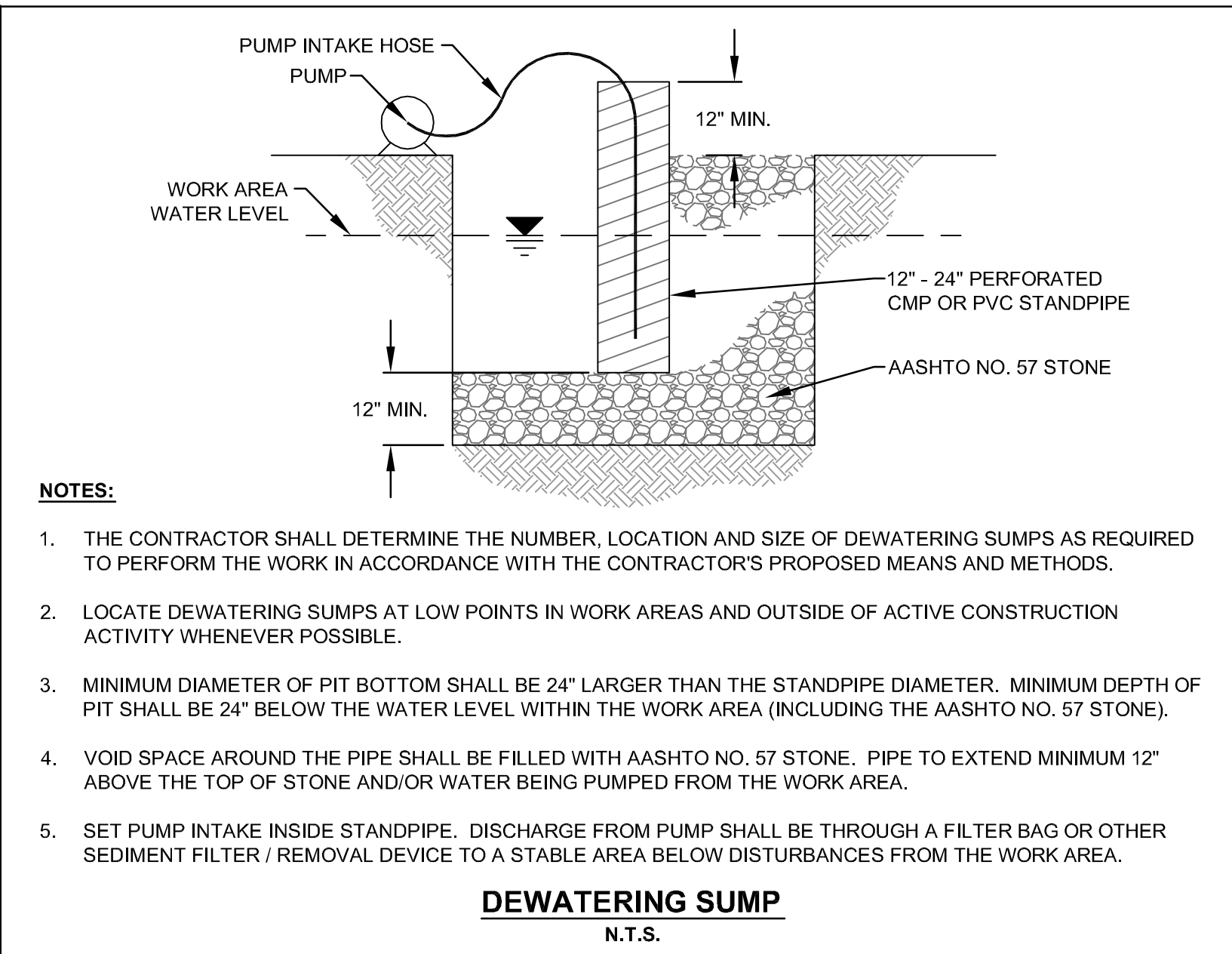
**C2.01**



**NOTES:**

- TURBIDITY BARRIERS SHALL BE A BRIGHT COLOR (YELLOW OR ORANGE) THAT WILL ATTRACT THE ATTENTION OF NEARBY BOATERS AND THE PUBLIC.
- THE TURBIDITY BARRIER FABRIC SHALL MEET THE MANUFACTURER'S RECOMMENDATIONS FOR THE APPLICATION.
- SEAMS IN THE FABRIC SHALL BE EITHER WELDED, HEAT SEALED OR SEWN AND SHALL DEVELOP THE FULL STRENGTH OF THE FABRIC.
- FLOATATION DEVICES SHALL BE FLEXIBLE, BUOYANT UNITS CONTAINED IN AN INDIVIDUAL FLOATATION SLEEVE OR COLLAR ATTACHED TO THE CURTAIN. BUOYANCY PROVIDED BY THE FLOATATION UNITS SHALL BE SUFFICIENT TO SUPPORT THE WEIGHT OF THE CURTAIN AND MAINTAIN A FREEBOARD OF AT LEAST 3 INCHES ABOVE THE WATER SURFACE LEVEL.
- LOAD LINES SHALL BE FABRICATED INTO THE BOTTOM OF ALL FLOATING TURBIDITY CURTAINS. THE LOAD LINE SHALL CONSIST OF A CHAIN INCORPORATED INTO THE BOTTOM HEM OF THE CURTAIN OF SUFFICIENT WEIGHT TO SERVE AS A BALLAST TO HOLD THE CURTAIN IN A VERTICAL POSITION. ADDITIONAL ANCHORAGE SHALL BE PROVIDED AS NECESSARY. THE LOAD LINES SHALL HAVE SUITABLE CONNECTING DEVICES WHICH DEVELOP THE FULL BREAKING STRENGTH FOR CONNECTION TO LOAD LINES IN ADJACENT SECTIONS.
- EXTERNAL ANCHORS MAY CONSIST OF WOODEN OR METAL STAKES SIZED TO PROVIDE SUFFICIENT ANCHORAGE TO SUPPORT THE TURBIDITY BARRIER IN PLACE.
- BOTTOM ANCHORS SHALL BE SUFFICIENT TO HOLD THE CURTAIN IN THE SAME POSITION RELATIVE TO THE BOTTOM OF THE WATERCOURSE WITHOUT INTERFERING WITH THE ACTION OF THE CURTAIN. THE ANCHOR MAY DIG INTO THE BOTTOM (GRAPPLING HOOK, PLOW OR FLUKE-TYPE) OR MAY BE WEIGHTED AND SHOULD BE ATTACHED TO A FLOATING BUOY VIA AN ANCHOR LINE. THE ANCHOR LINE SHALL THEN RUN FROM THE BUOY TO THE LOAD LINE OF THE CURTAIN. ANCHOR SPACING WILL VARY WITH CURRENT VELOCITY AND POTENTIAL WIND AND WAVE DIRECTION. MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED.

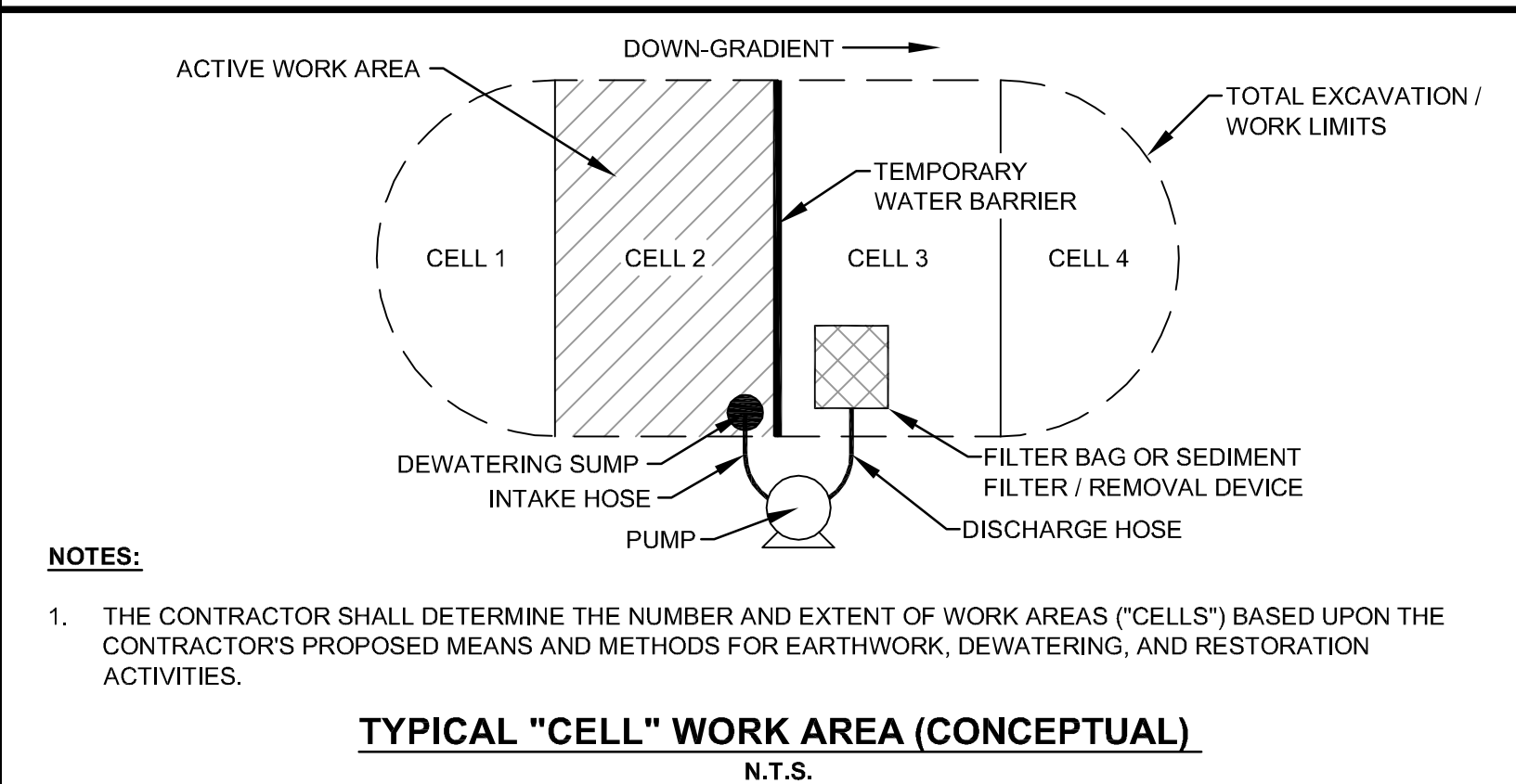
**FLOATING HEAVY DUTY - IMPERMEABLE TURBIDITY BARRIER (IF NEEDED)**  
N.T.S.



**NOTES:**

- THE CONTRACTOR SHALL DETERMINE THE NUMBER, LOCATION AND SIZE OF DEWATERING SUMPS AS REQUIRED TO PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACTOR'S PROPOSED MEANS AND METHODS.
- LOCATE DEWATERING SUMPS AT LOW POINTS IN WORK AREAS AND OUTSIDE OF ACTIVE CONSTRUCTION ACTIVITY WHENEVER POSSIBLE.
- MINIMUM DIAMETER OF PIT BOTTOM SHALL BE 24" LARGER THAN THE STANDPIPE DIAMETER. MINIMUM DEPTH OF PIT SHALL BE 24" BELOW THE WATER LEVEL WITHIN THE WORK AREA (INCLUDING THE AASHTO NO. 57 STONE).
- VOID SPACE AROUND THE PIPE SHALL BE FILLED WITH AASHTO NO. 57 STONE. PIPE TO EXTEND MINIMUM 12" ABOVE THE TOP OF STONE AND/OR WATER BEING PUMPED FROM THE WORK AREA.
- SET PUMP INTAKE INSIDE STANDPIPE. DISCHARGE FROM PUMP SHALL BE THROUGH A FILTER BAG OR OTHER SEDIMENT FILTER / REMOVAL DEVICE TO A STABLE AREA BELOW DISTURBANCES FROM THE WORK AREA.

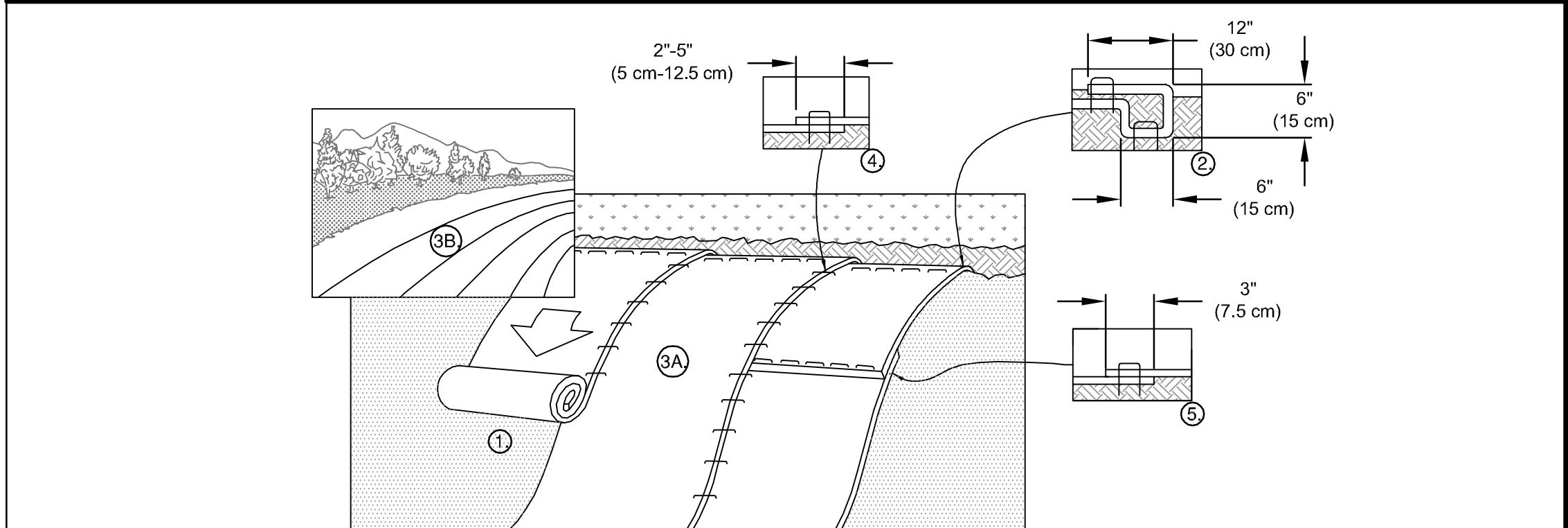
**DEWATERING SUMP**  
N.T.S.



**NOTES:**

- THE CONTRACTOR SHALL DETERMINE THE NUMBER AND EXTENT OF WORK AREAS ("CELLS") BASED UPON THE CONTRACTOR'S PROPOSED MEANS AND METHODS FOR EARTHWORK, DEWATERING, AND RESTORATION ACTIVITIES.

**TYPICAL "CELL" WORK AREA (CONCEPTUAL)**  
N.T.S.



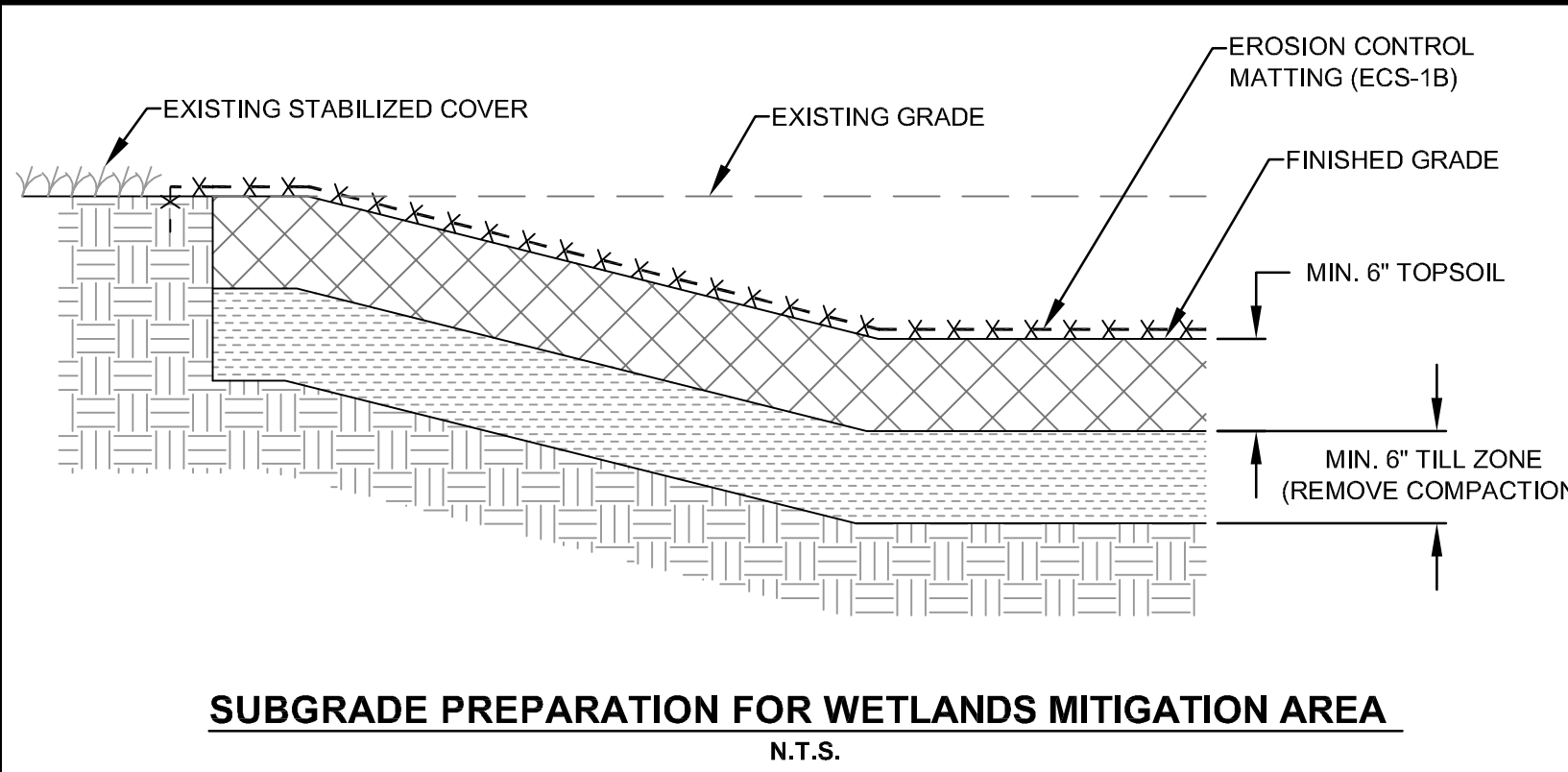
**NOTES:**

- PLACE EROSION CONTROL MATTING (ECS-1B SINGLE NET STRAW BIODEGRADABLE ROLLED EROSION CONTROL PRODUCT OR APPROVED EQUAL) ON ALL DISTURBED GROUND WITHIN THE TIDAL WETLAND AREA.
- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 cm) DEEP X 6" (15 cm) WIDE TRENCH WITH APPROXIMATELY 12" (30 cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO GRADED SOIL AND FOLD REMAINING 12" (30 cm) PORTION OF BLANKET BACK OVER SEED AND GRADED SOIL. SECURE BLANKET OVER GRADED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS SHALL BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHALL BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS SHALL BE STAPLED WITH APPROXIMATELY 2"-5" (5 cm-12.5 cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE SHALL BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 cm) APART ACROSS ENTIRE BLANKET WIDTH.

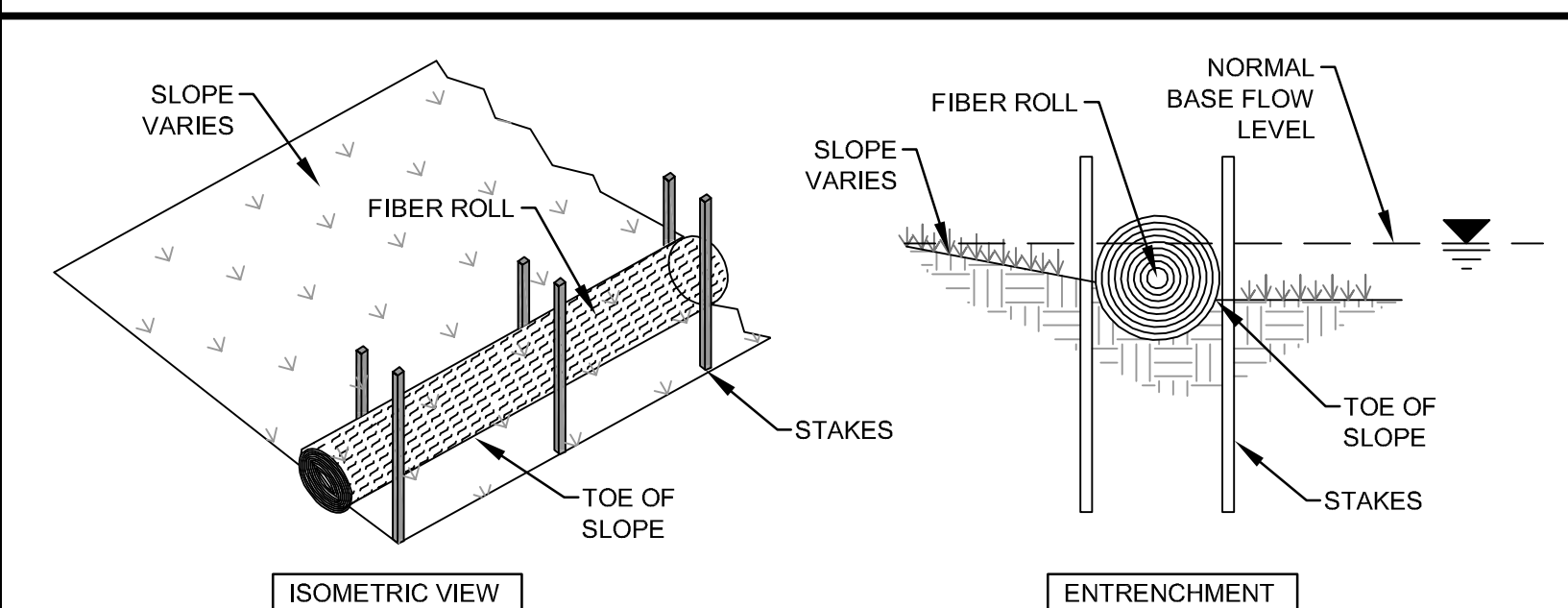
**SUPPLEMENTAL NOTES:**

- IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
- STAPLE PATTERNS AND APPLICATIONS VARY BETWEEN MANUFACTURERS AND MATTING TYPES. THE CONTRACTOR SHALL CONSULT SPECIFIC MANUFACTURER INSTALLATION PROCEDURES FOR STAPLE SPACING AND CONSTRUCTION.

**EROSION CONTROL MATTING**  
N.T.S.



**SUBGRADE PREPARATION FOR WETLANDS MITIGATION AREA**  
N.T.S.



**NOTES:**

- SLOPE SHALL BE BACKFILLED AND PROTECTED WITH TEMPORARY EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION IS ESTABLISHED. INSTALL FIBER ROLL ALONG A LEVEL CONTOUR.
- LIVE OR DEAD STAKES, MINIMUM 3' LENGTH, SHALL BE NOTCHED FOR TWINE OR ROPE AND SPACED AT 3' TO 4' INTERVALS.
- PLUGS SHALL BE PLANTED WITHIN THE FIBER LOG AT 24" INTERVALS.

**NATURAL FIBER ROLL**  
N.T.S.

BMP MAINTENANCE SCHEDULE			
CONTROL MEASURE	INSPECT	PROBLEMS TO LOOK FOR	POSSIBLE REMEDIES
ROCK CONSTRUCTION ENTRANCE	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	STONE THICKNESS NOT CONSTANTLY MAINTAINED	ADD ROCK TO BRING TO SPECIFIED DIMENSIONS
		SEDIMENT ON PUBLIC ROADWAY	SWEEP MATERIAL BACK TO PROJECT SITE. DO NOT WASH ROADWAY WITH WATER
COMPOST FILTER SOCK	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	BARRIER HAS BEEN UNDERMINED OR TOPPED	REPLACE WITH A ROCK FILTER OUTLET
		SEDIMENT AT 1/2 HEIGHT OF BARRIER	REMOVE SEDIMENT, PLACE ACROSS SITE AS FILL
		TORN OR DAMAGED FABRIC	INCREASE NUMBER OF STAKES AT AFFECTED AREA
		SOCK IS OLDER THAN PERMITTED	REPAIR ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACE
ROCK FILTER OUTLET	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	RUNOFF ESCAPING AROUND BARRIER	EXTEND BARRIER
		LINING WASHED AWAY	RESHAPE AS NECESSARY AND REPLACE TOP LAYER WITH STONE
		SEDIMENT AT 1/3 HEIGHT OF BARRIER	REMOVE SEDIMENT, PLACE ACROSS SITE AS FILL
		RUNOFF ESCAPING AROUND BARRIER	REBULD/EXTEND BARRIER
INLET PROTECTION	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	CLOGGING	WASH OR REPLACE SEDIMENT LADEN STONE WITH LARGER SIZE RIPRAP
		TORN FABRIC, TEARS OR BREACHES	REPLACE INLET PROTECTION
		SEDIMENT ESCAPING WITH WATER	REPLACE INLET PROTECTION
EROSION CONTROL MATTING	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	MORE THAN 50% FILLED WITH SEDIMENT	REMOVE SEDIMENT, SPREAD OVER SITE
		TORN OR LOOSE STAPLED AREAS	REMOVE AND REPLACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
		VEGETATION GROWTH	RE-SEED
PUMPED WATER FILTER BAG	BEFORE AND AFTER EACH USE	MATTING DESTROYED OR DAMAGED	REGRADE AND REPAIR ANY UNDERMINED OR WASHED OUT AREAS
		TORN FABRIC, TEARS OR BREACHES	REPLACE FILTER BAG
		SEDIMENT ESCAPING WITH PURGE WATER	REPLACE FILTER BAG
VEGETATION	ONCE A WEEK AND AFTER EVERY RAINFALL EVENT	MORE THAN 50% FILLED WITH SEDIMENT	REMOVE SEDIMENT, SPREAD OVER SITE
		SEDIMENT AT TOE OF SLOPE	CHECK FOR TOE OF SLOPE DIVERSION AND INSTALL IF NEEDED
		RILLS & GULLIES	FILL RILLS AND RE-GRADE GULLIED SLOPES
		BARE SOIL PATCHES	RE-SEED, FERTILIZE, LIME AND RE-MULCH

**NOTES:**

- REFER TO BMP DETAIL FOR ADDITIONAL MAINTENANCE REQUIREMENTS AND REMEDIES.

GENERAL TEMPORARY SEEDING SPECIFICATIONS <sup>1</sup>			PERMANENT SEEDING SPECIFICATIONS
SPECIES	ANNUAL RYEGRASS		DISTURBED AREAS WILL BE PLANTED, SEEDED AND MULCHED ACCORDING TO THE PERMANENT SEEDING SPECIFICATIONS PRESENTED ON THE LANDSCAPE PLANS FOR THE WETLAND MITIGATION.
% PURE LIVE SEED	83	%	
APPLICATION RATE	40	LBS/ACRE	
FERTILIZER RATE	N-P <sub>2</sub> O <sub>5</sub> -K <sub>2</sub> O		
FERTILIZER APPLICATION RATE	0-0-0	LBS/ACRE	
LIMING RATE	0	TONS/ACRE	
<sup>1</sup> SEED MIXTURE SELECTION BASED ON THE EROSION CONTROL AND CONSERVATION PLANTINGS ON NON-CROPLAND MANUAL.			

GENERAL MULCHING SPECIFICATIONS				
MULCH TYPE	MINIMUM APPLICATION RATE			NOTES
	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YD.	
STRAW	3 TONS	140 LB.	1,240 LB.	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3 TONS	140 LB.	1,240 LB.	TIMOTHY, MIXED CLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES

**NOTES:**

- INTERIM CONTROL MEASURES:
  - PLANTING OF ANNUAL RYEGRASS (TEMPORARY SEEDING) AND MULCHING SHALL BE COMPLETED IN THE EVENT THAT PERMANENT SEEDING CANNOT OCCUR DUE TO WEATHER CONDITIONS.
  - MULCHING, WITHOUT SEEDING, CAN BE USED AS AN INTERIM STABILIZATION CONTROL DURING NON-GROWING SEASONS OF THE YEAR. MULCHING MATERIALS, MULCH BINDERS, CONSTRUCTION AND MAINTENANCE SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SECTION 805.
  - MULCHING WILL BE UTILIZED DURING THE WINTER MONTHS (OCTOBER 17 - FEBRUARY 28) AS A GROUND COVER ON TOPSOIL, GRADED SLOPES AND OTHER AREAS TO BE GRASSED.
  - DISTURBED ARAS SHALL BE SEEDED WITHIN THE FIRST WEEK OF THE DESIGNATED GROWING SEASON OR BEFORE IF THE WEATHER IS FAVORABLE.
- SOIL SUPPLEMENTS SHALL CONFORM TO THE REQUIREMENTS OF PENNDOT PUBLICATION 408, 804.

**REMEDIAL ACTIONS IF SEED AND MULCH ARE WASHED AWAY OR IF THE SEED MIX IS NOT GROWING:**

- THE AFFECTED AREA WILL BE LIMED, FERTILIZED, SEEDED AND MULCHED AS NEEDED.
- EROSION CONTROL MATTING OR NETTING WILL BE APPLIED AS NEEDED.
- STEPS 1 AND 2 WILL BE REPEATED AS NEEDED UNTIL A UNIFORM 70% STABILIZED GROUND COVER IS ACHIEVED.

**PHL** PHILADELPHIA INTERNATIONAL AIRPORT

**ENGINEER OF RECORD:**

**URS CORPORATION** DATE

**APPROVED FOR BID:**

**AIRPORT ENGINEERING MANAGER** DATE

**DESIGN TEAM:**

**URS** 8 PENN CENTER, 21ST FLOOR  
1628 JOHN F. KENNEDY BLVD  
PHILADELPHIA, PA 19103  
PHONE: 215-587-9000  
FAX: 215-587-0668

**HUNT ENGINEERING COMPANY** 22 EAST KING STREET  
MALVERN, PA 19355  
PHONE: 610-644-4600  
FAX: 610-644-2466

REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
0	ISSUED FOR BID	01/24/13

**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**TYPICAL DETAILS**

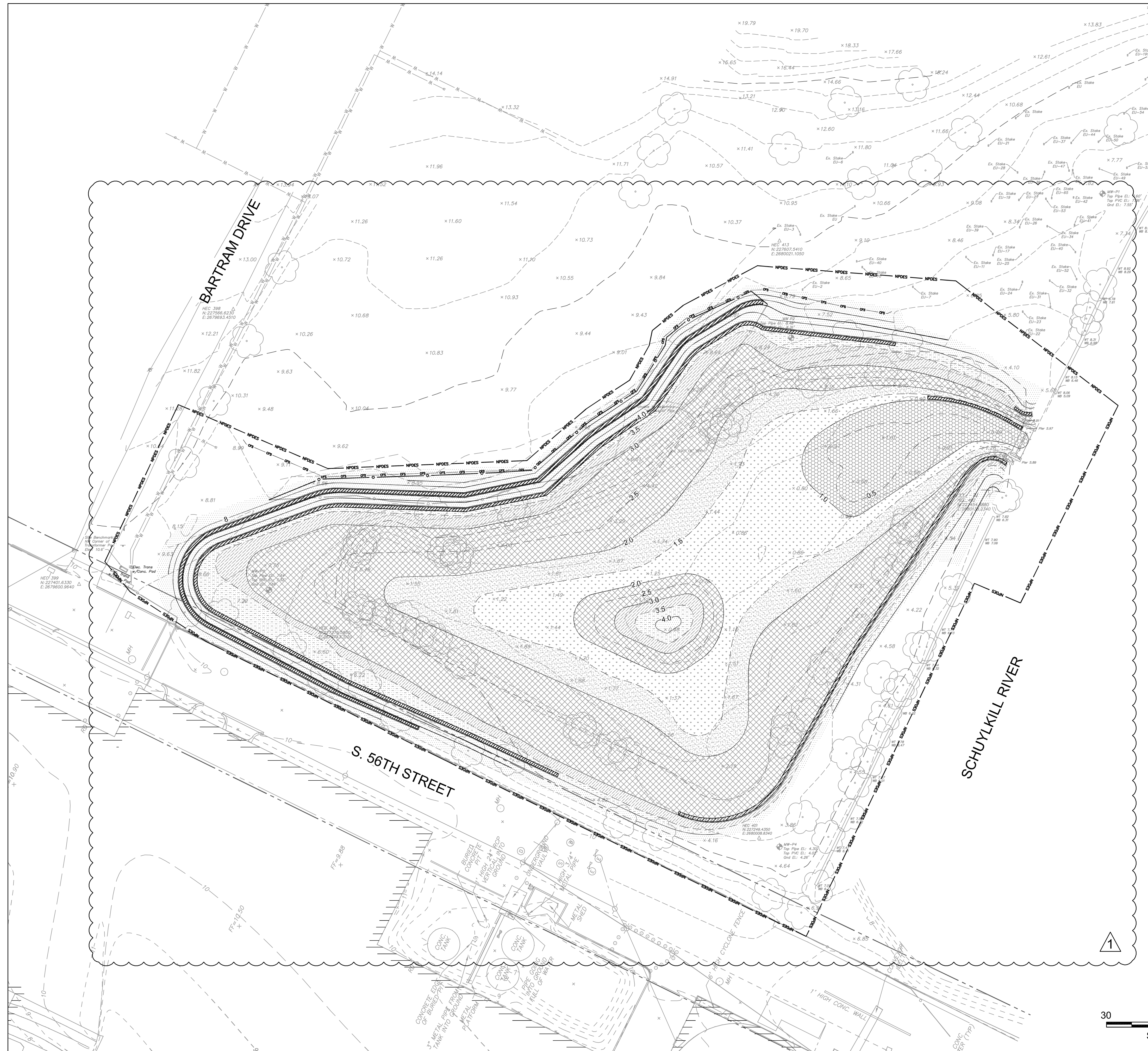
**JOB NO: 20835660** **CHECKED: DG**

**DRAWN: JRJ** **DATE: 2013/01/14**

**WORK NO. PHL-1528.18**

**DRAWING NO. C2.02**

**SHEET NO. 6 of 10**



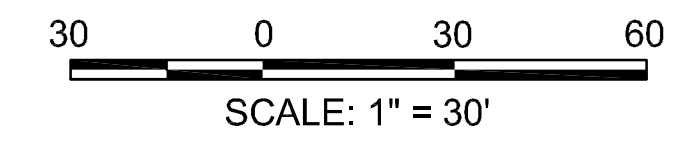
**LEGEND PLANTING ZONES:**

- PLANTING ZONE 1
- PLANTING ZONE 2
- PLANTING ZONE 3
- PLANTING ZONE 4
- PLANTING ZONE 5
- PLANTING ZONE 6
- PLANTING ZONE 7

**LEGEND FOR EXISTING FEATURES:**

- CHAIN-LINK FENCE
- INDEX CONTOURS
- CONTOURS
- TC TOP BACK OF CURB
- BC BOTTOM OF CURB
- WT TOP OF WALL
- WB BOTTOM OF WALL
- X 12.34 SPOT ELEVATION
- UTILITY POLE
- SIGN
- INLET
- WATER VALVE
- GAS VALVE
- BOLLARD
- MISC. VALVE
- DECIDUOUS TREE WITH SIZE
- LIGHT POLE
- TIDAL WETLAND
- SOIL TYPE LINE
- Ub SOIL TYPE LABEL
- PROPERTY LINE
- MONITORING WELL

PLANT ZONE ACREAGE		
ZONE	PLANT TYPES	AREA
1	OPEN WATER	0.12 ACRES
2	LOW MARSH - REGULARLY FLOODED	0.29 ACRES
3	HIGH MARSH - REGULARLY FLOODED	0.27 ACRES
4	HIGH MARSH - FREQUENTLY FLOODED	0.81 ACRES
5	SCRUB - SHRUB	0.17 ACRES
6	FORESTED	0.17 ACRES
WETLAND TOTAL		1.83 ACRES
7	UPLAND FOREST	0.38 ACRES
TOTAL MITIGATION		2.21 ACRES



PENNSYLVANIA ONE CALL SYSTEM  
PA ACT 172 OF 1988 REQUIRES THREE  
WORKING DAYS NOTICE

ENGINEER OF RECORD:

URS CORPORATION DATE

APPROVED FOR BID:

AIRPORT ENGINEERING MANAGER DATE

DESIGN TEAM:

**URS**  
8 PENN CENTER, 21ST FLOOR  
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REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
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**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**LANDSCAPE PLAN**

JOB NO: 20835660 CHECKED: DG

DRAWN: JRJ DATE: 2013/01/14

WORK NO. PHL-1528.18

DRAWING NO.

**L1.01**

ENGINEER OF RECORD:

URS CORPORATION DATE

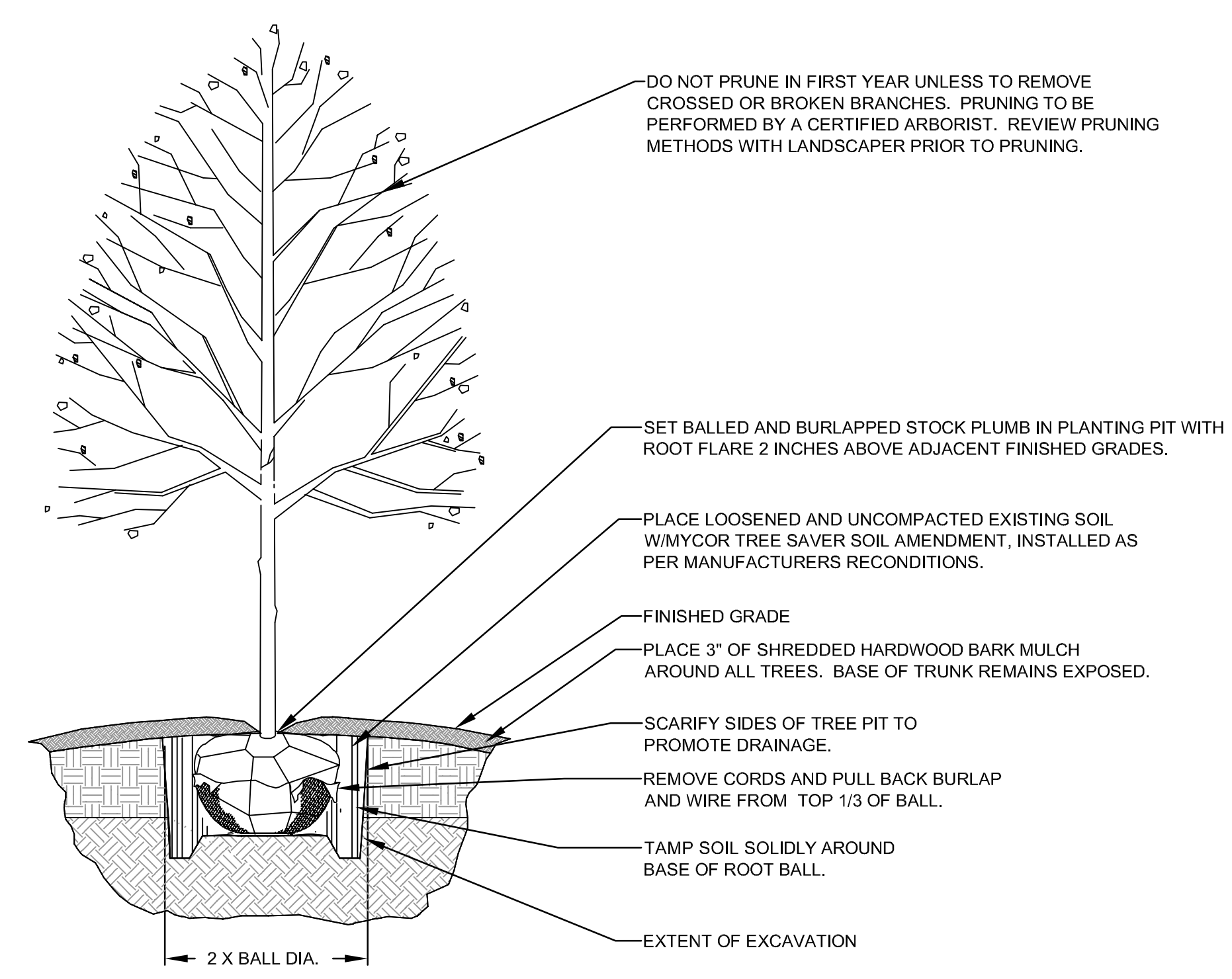
APPROVED FOR BID:

AIRPORT ENGINEERING MANAGER DATE

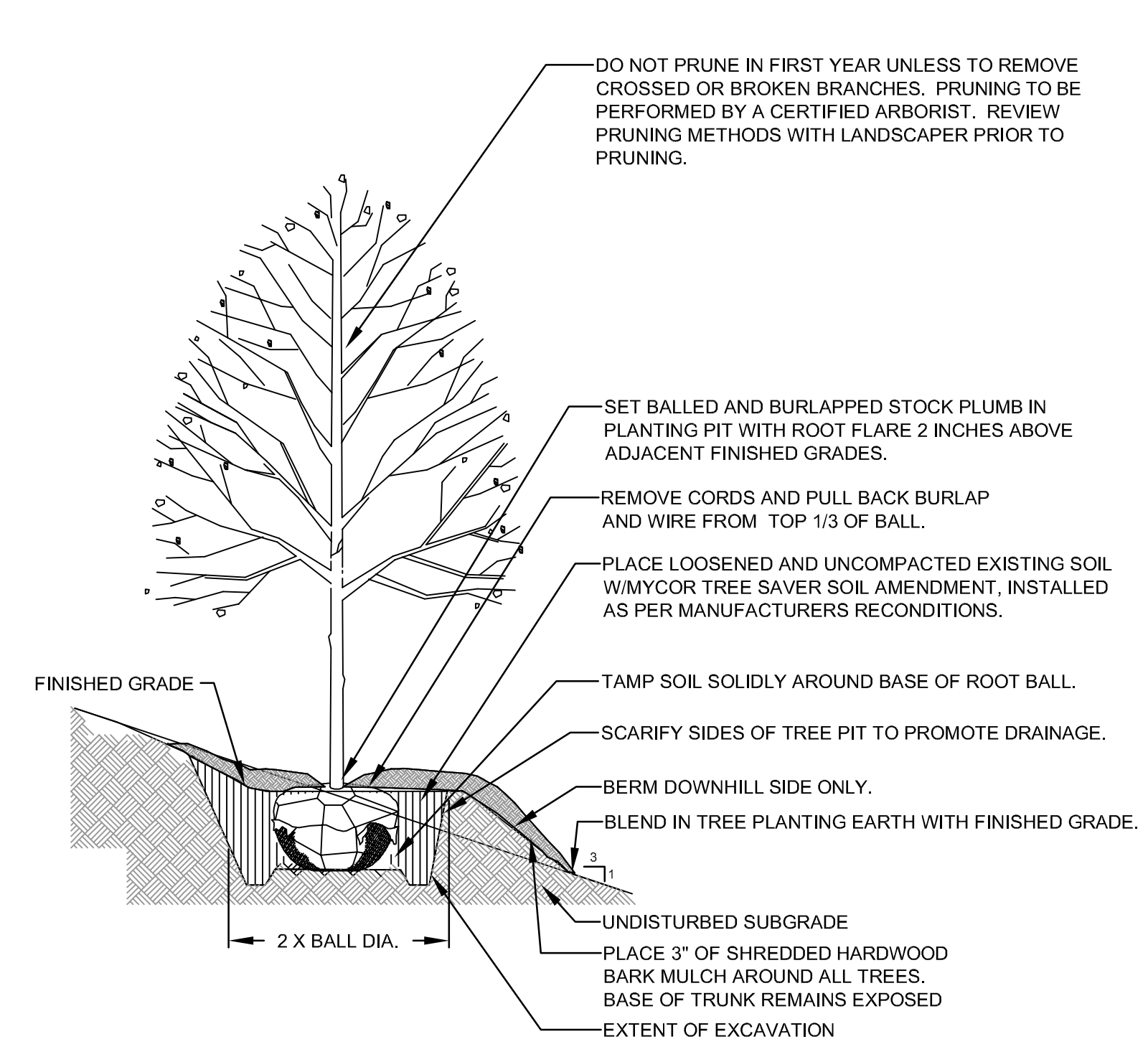
DESIGN TEAM:

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 8 PENN CENTER, 21ST FLOOR  
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 PHILADELPHIA, PA 19103  
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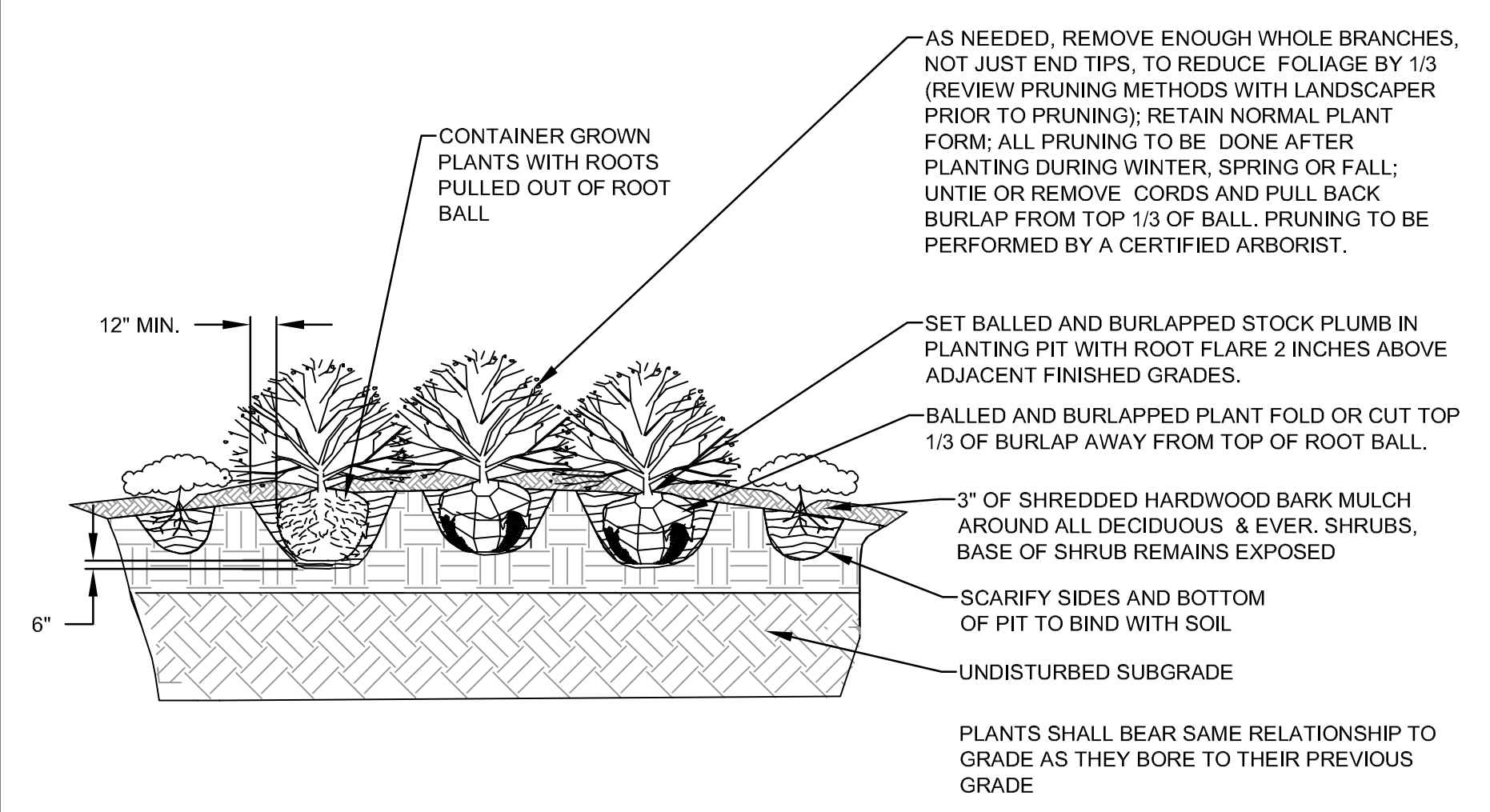
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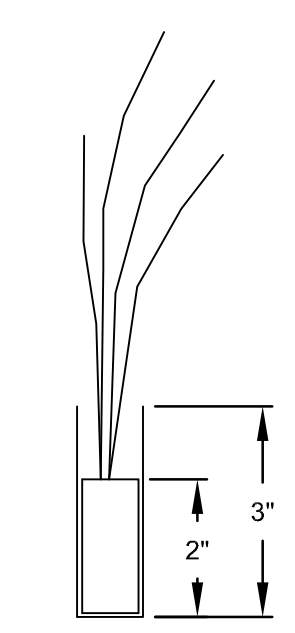
**TREE PLANTING DETAIL**  
N.T.S.



**TREE PLANTING ON SLOPE DETAIL**  
N.T.S.

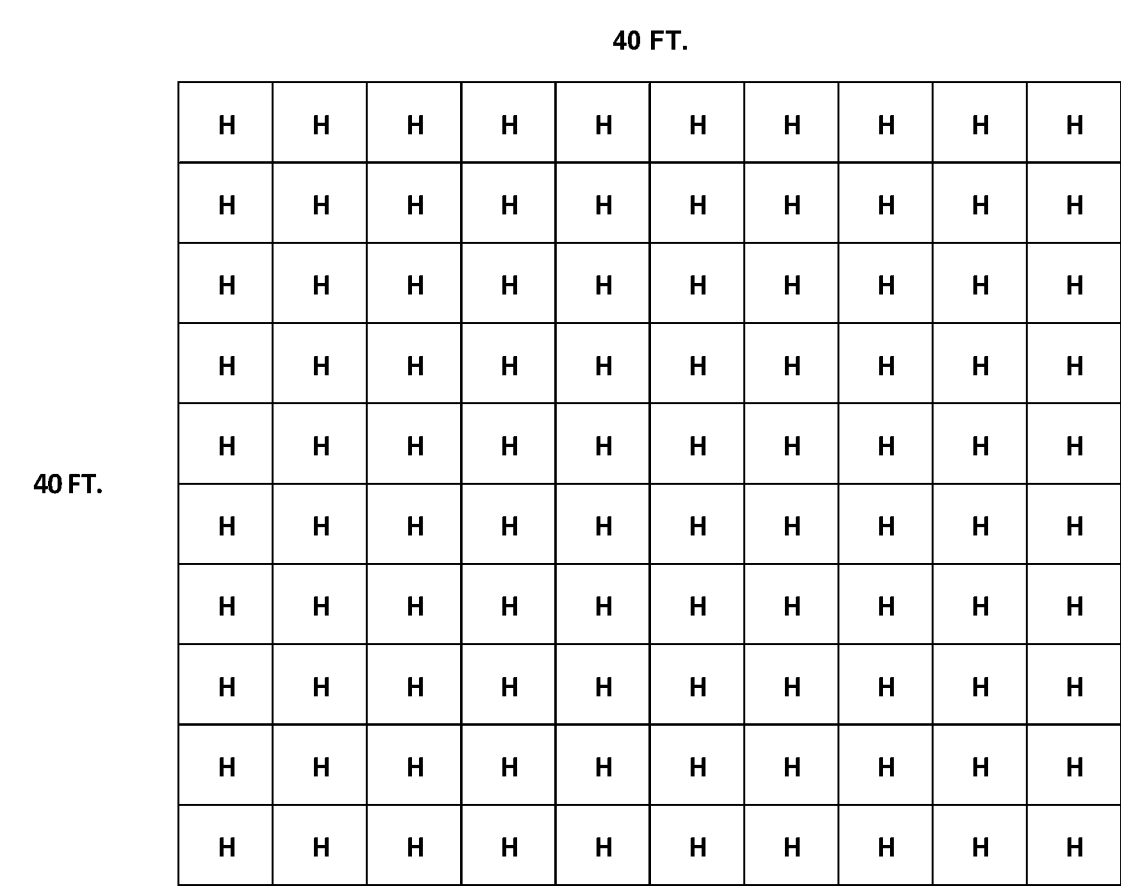


**SHRUB PLANTING DETAIL**  
N.T.S.



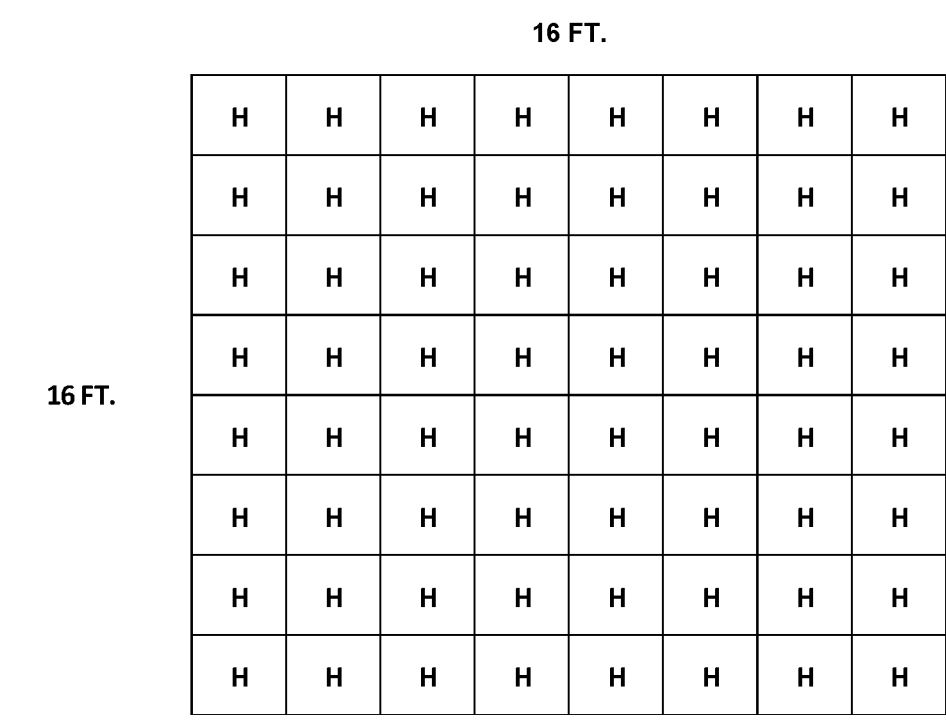
**NOTES:**  
 1. FILL AROUND BOTTOM AND SIDES WITH SOIL REMOVED FROM PLANTING HOLE.

**PLUG PLANTING DETAIL**  
N.T.S.



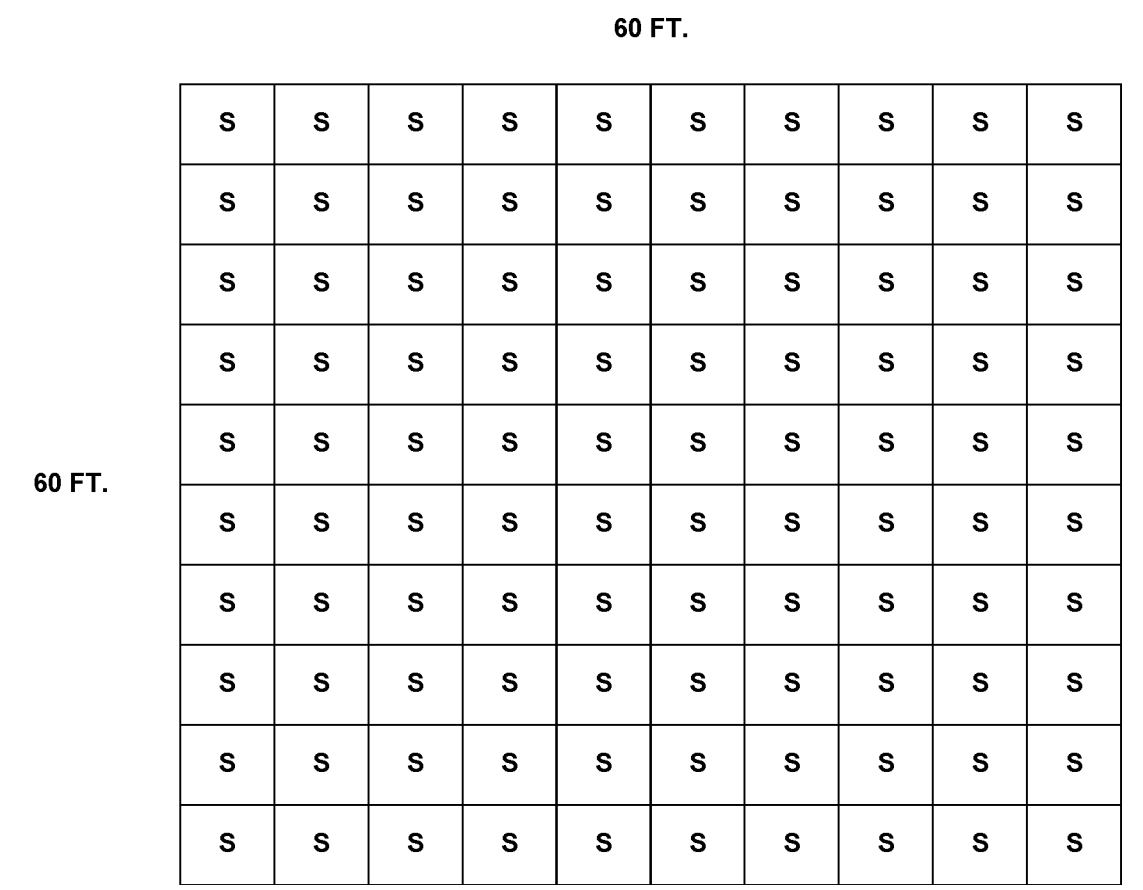
**NOTES:**  
 1. HERBACEOUS ("H") TO BE PLANTED 4 FEET ON CENTER.

**PLANTING ZONE 2 LAYOUT**  
N.T.S.



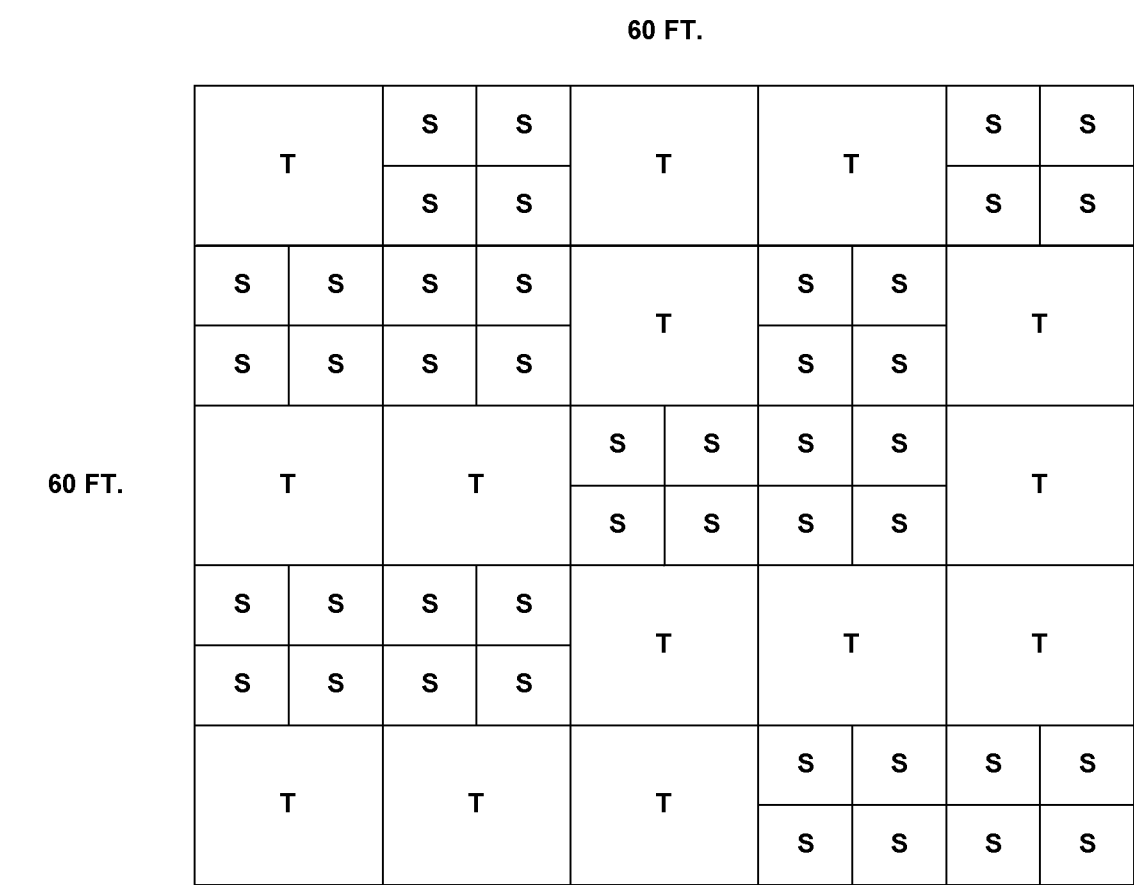
**NOTES:**  
 1. HERBACEOUS ("H") TO BE PLANTED 2 FEET ON CENTER.

**PLANTING ZONES 3 AND 4 LAYOUT**  
N.T.S.



**NOTES:**  
 1. SHRUBS ("S") TO BE PLANTED 6 FEET ON CENTER.

**PLANTING ZONE 5 LAYOUT**  
N.T.S.



**NOTES:**  
 1. SHRUBS ("S") TO BE PLANTED 6 FEET ON CENTER.  
 2. TREES ("T") TO BE PLANTED 12 FEET ON CENTER.

**PLANTING ZONES 6 AND 7 LAYOUT**  
N.T.S.

REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
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**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**TYPICAL DETAILS**

JOB NO: 20835660 CHECKED: DG

DRAWN: JRJ DATE: 2013/01/14

WORK NO. PHL-1528.18

DRAWING NO.

**L2.01**



**WETLAND MITIGATION PLANTING SCHEDULES**

1

Zone 2 - Low Marsh (Regularly Flooded)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity
Herbaceous	<i>Nuphar advena</i>	Spatterdock	#1	296
	<i>Nelumbo lutea</i>	American lotus	#1	206
	<i>Sagittaria latifolia</i>	Broadleaf arrowhead	#1	296

Zone 3 - High Marsh (Regularly Flooded)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity
Herbaceous	<i>Peltandra virginica</i>	Arrow arum	2" Plug	765
	<i>Polygonum arifolium</i>	Halberleaf tearthumb	2" Plug	405
	<i>Pontederia cordata</i>	Pickerelweed	2" Plug	765
	<i>Sagittaria latifolia</i>	Broadleaf arrowhead	2" Plug	765

Zone 4 - High Marsh (Regularly Inundated)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity *
Herbaceous	<i>Alisma subcordatum</i>	Water plantain	2" Plugs	900
	<i>Amaranthus cannabinus</i>	Tidal marsh amaranth	2" Plugs	900
	<i>Bidens laevis</i>	Bur marigold	2" Plugs	900
	<i>Iris Versicolor</i>	Blueflag	2" Plugs	900
	<i>Impatiens capensis</i>	Jewelweed	2" Plugs	900
	<i>Juncus effusus</i>	Soft rush	2" Plugs	900
	<i>Lobelia cardinalis</i>	Cardinal flower	2" Plugs	900
	<i>Polygonum punctatum</i>	Dotted smartweed	2" Plugs	900
	<i>Saururus cernuus</i>	Lizard tail	2" Plugs	900
	Shrub	<i>Hibiscus moscheutos</i>	Swamp rosemallow	#1

\* Note: Shrubs to be planted on 6-foot centers.

Zone 5 - Scrub/Shrub (Frequently Inundated)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity
Shrubs	<i>Alnus incanta spp. rugosa</i>	Speckled alder	#3	51
	<i>Cephalanthus occidentalis</i>	Buttonbush	#2	51
	<i>Cornus amomum</i>	Silky dogwood	#3	26
	<i>Lindera benzoin</i>	Spicebush	#2	51
	<i>Rosa palustris</i>	Swamp rose	#2	26

Zone 6 - Forested (Periodically Inundated)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity
Trees	<i>Acer rubrum</i>	Red maple	#3	9
	<i>Quercus bicolor</i>	Swamp white oak	#3	10
	<i>Quercus palustris</i>	Pin oak	#3	2
	<i>Nyssa sylvatica var biflora</i>	Swamp tupelo	#3	7
	<i>Ulmus americana</i>	American elm	#3	1
Shrubs	<i>Alnus incanta spp. rugosa</i>	Speckled alder	#3	10
	<i>Clethra alnifolia</i>	Sweet pepperbush	#2	10
	<i>Cornus amomum</i>	Silky dogwood	#3	10
	<i>Ilex verticillata</i>	Winterberry	#2	10
	<i>Lindera benzoin</i>	Spicebush	#2	10
	<i>Sambucus canadensis</i>	Elderberry	#1	10

Zone 7 - Forested (Upland Buffer)				
Plant Type	Scientific Name	Common Name	Container Size	Quantity *
Trees	<i>Betula nigra</i>	River birch	#3	32
	<i>Liquidambar styraciflua</i>	Sweetgum	#3	32
Shrubs	<i>Aronia melanocarpa</i>	Black chokeberry	#3	21
	<i>Cornus amomum</i>	Silky dogwood	#3	21
	<i>Ilex glabra</i>	Inkberry	#3	21
	<i>Myrica pensylvanica</i>	Bayberry	#3	21
	<i>Viburnum dentatum</i>	Arrowwood	#3	21
	<i>Viburnum lentago</i>	Nannyberry	#3	21

\* Note: Trees to be planted on 15-foot centers.

Zone 8 - Natural Fiber Log - Bottom Row Only				
Plant Type	Scientific Name	Common Name	Container Size	Quantity
Herbaceous	<i>Elymus riparius</i>	Riverbank wildrye	2" Plug	444

Note: Plugs shall be installed on the lower row of natural fiber logs only. Plugs shall be installed on 2-foot centers.

RECOMMENDED SEEDING SCHEDULE PA Coastal Plain Province FACW Mix (ERNMIX 271)		
Scientific Name	Common Name	Percent Composition
<i>Carex vulpinoidea</i>	Fox Sedge	23%
<i>Elymus virginicus</i>	Virginia Wildrye	20%
<i>Carex lurida</i>	Lurid Sedge	12%
<i>Carex squarrosa</i>	Squarrose Sedge	4%
<i>Helenium autumnale</i>	Common sneezeweed	4%
<i>Eupatorium perfoliatum</i>	Boneset	3%
<i>Panicum anceps</i>	Beaced Panicgrass	3%
<i>Juncus effusus</i>	Soft Rush	3%
<i>Euthamia graminifolia</i>	Grassleaf Goldenrod	2%
<i>Panicum rigidulum</i>	Redtop Panicgrass	2%
<i>Carex lupulina</i>	Hop Sedge	2%
<i>Aster umbellatus</i>	Flat Topped White Aster	2%
<i>Aster puniceus</i>	Purplestem Aster	2%
<i>Aster prenanthoides</i>	Zigzag Aster	2%
<i>Vernonia noveboracensis</i>	New York Ironweed	2%
<i>Verbena hastata</i>	Blue Vervain	2%
<i>Helioopsis helianthoides</i>	Oxeye Sunflower	1%
<i>Asclepias incamata</i>	Swamp Milkweed	1%
<i>Zizia aurea</i>	Golden Alexanders	1%
<i>Carex intumescens</i>	Bladder Sedge	1%
<i>Lilium superbum</i>	Turk's Cap Lilly	1%
<i>Scirpus polyphyllus</i>	Many Leaved Bullrush	1%
<i>Gentiana clausa</i>	Meadow Bottle Gentian	1%
<i>Carex comosa</i>	Cosmos Sedge	1%
<i>Lobelia siphilitica</i>	Great Blue Lobelia	1%
<i>Ludwigia alternifolia</i>	Seedbox	1%

**NOTES:**

- THIS MIX SHALL BE APPLIED (SEEDED AND MULCHED) TO ANY EXPOSED GROUND SURFACE WITHIN ZONES 5 AND 6 OF THE WETLAND MITIGATION AREA.
- APPLICATION RATE: 20 LBS. PER ACRE.
- THIS MIX IS AVAILABLE FROM ERNST CONSERVATION SEED, MEADVILLE, PA. A SUITABLE ALTERNATIVE MAY BE USED BASED UPON APPROVAL BY THE ENGINEER OR REPRESENTATIVE.

RECOMMENDED SEEDING SCHEDULE PA Coastal Plain Province UPL Mix (ERNMIX 270)		
Scientific Name	Common Name	Percent Composition
<i>Sorghastrum nutans</i>	Indiangrass	29%
<i>Schizachyrium scoparium</i>	Little Bluestem	29%
<i>Elymus virginicus</i>	Virginia Wildrye	15%
<i>Andropogon gerardii</i>	Big Bluestem	8%
<i>Tridens flavus</i>	Purpletop	7%
<i>Panicum clandestinum</i>	Deertounge	5%
<i>Panicum virgatum</i>	Switchgrass	4%
<i>Eragrostis spectabilis</i>	Purple Lovegrass	3%

**NOTES:**

- THIS MIX SHALL BE APPLIED (SEEDED AND MULCHED) TO ANY EXPOSED GROUND SURFACE WITHIN ZONE 7 (UPLAND BUFFER) OF THE WETLAND MITIGATION AREA AND ALL DISTURBED UPLAND AREAS.
- APPLICATION RATE: 20 LBS. PER ACRE.
- THIS MIX IS AVAILABLE FROM ERNST CONSERVATION SEED, MEADVILLE, PA. A SUITABLE ALTERNATIVE MAY BE USED BASED UPON APPROVAL BY THE ENGINEER OR REPRESENTATIVE.

**GENERAL PLANTING NOTES:**

- ALL PLANT MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED; INCLUDING ALL LABOR, MATERIALS, PLANTS, EQUIPMENT, INCIDENTALS AND CLEAN UP.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT. ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT DID TO EXISTING GRADE.
- ALL PLANT MATERIAL SHALL BE NURSERY-GROWN OF SPECIMEN QUALITY. THEY SHALL BE SUPPLIED FROM SOURCES IN THE SAME HARDINESS ZONE AS THE PROJECT IS LOCATED. ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1.
- ALL PLANT MATERIAL SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS; WELL-DEVELOPED BRANCHES, DENSELY FOLIATED VIGOROUS ROOT SYSTEMS AND BE FREE FROM DEFECTS, INJURIES, INSECT AND DISEASE PROBLEMS.
- CONTAINER GROWN NURSERY STOCK SHALL HAVE A WELL-ESTABLISHED ROOT SYSTEM REACHING THE SIDES OF THE CONTAINER TO MAINTAIN A FIRM BALL WHEN THE CONTAINER IS REMOVED, BUT SHALL NOT HAVE EXCESSIVE ROOT GROWTH ENCIRCLING THE INSIDE OF THE CONTAINER.
- CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
- INSOFAR AS IT IS PRACTICAL, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT PLANTS NOT PLANTED FROM DRYING BY PLACING THEM IN THE SHADE AND WATERING THEM DAILY. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE (3) DAY PERIOD AFTER DELIVERY.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WATER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTING SEASONS ARE DEFINED AS MARCH 15 THROUGH JUNE 15 AND SEPTEMBER 1 THROUGH OCTOBER 15. PLANTING IS ACCEPTABLE DURING OTHER MONTHS IF WEATHER PERMITS, THE GROUND IS NOT FROZEN AND SUPPLEMENTAL WATERING IS PROVIDED IN THE SUMMER.
- NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARD TO SIZE, SPECIES OR VARIETY WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OR THEIR REPRESENTATIVE. PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE DOCUMENTED.
- THE LOCATIONS OF ALL PLANT MATERIAL INDICATED ON THE LANDSCAPE PLAN ARE APPROXIMATE. THE FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE ENGINEER OR THEIR REPRESENTATIVE.
- THE PLANT SCHEDULE SHALL TAKE PRECEDENCE OVER THE LANDSCAPE PLAN.
- ALL PLANT MATERIAL SHALL BE PROPERLY PLANTED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS.
- THE LANDSCAPE CONTRACTOR SHALL OVER DIG EACH TREE AND SHRUB PLANTING PIT TWO TIMES THE WIDTH OF THE CONTAINER OR ROOT BALL IN CONFORMANCE WITH THE TYPICAL PLANTING DETAIL.
- NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED (SOAKING THE SOIL TO SATURATION) AT THE TIME OF INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF PLANTING. ANY SUCH PLANT THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED, INCLUDING THE ROOT MASS, AND SHALL BE REPLACED BY A PLANT OF SIMILAR SIZE AND SPECIES.
- FOR TREES, SHRUBS AND PLUGS, PLACE MANUFACTURER RECOMMENDED QUANTITY OF 20-10-5 OR 10-4-10 LONG-TERM RELEASE FERTILIZER TABLET(S) IN PLANTING HOLE NEXT TO ROOT BALL OR PLUG.



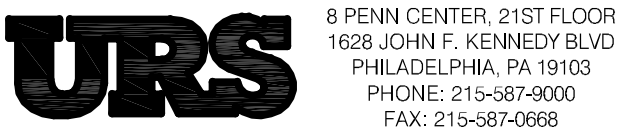
ENGINEER OF RECORD:

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DESIGN TEAM:



REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
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**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**TYPICAL DETAILS**

JOB NO: 20835660 CHECKED: DG

DRAWN: JRJ DATE: 2013/01/14

WORK NO. PHL-1528.18

DRAWING NO.

**L2.02**

ENGINEER OF RECORD:

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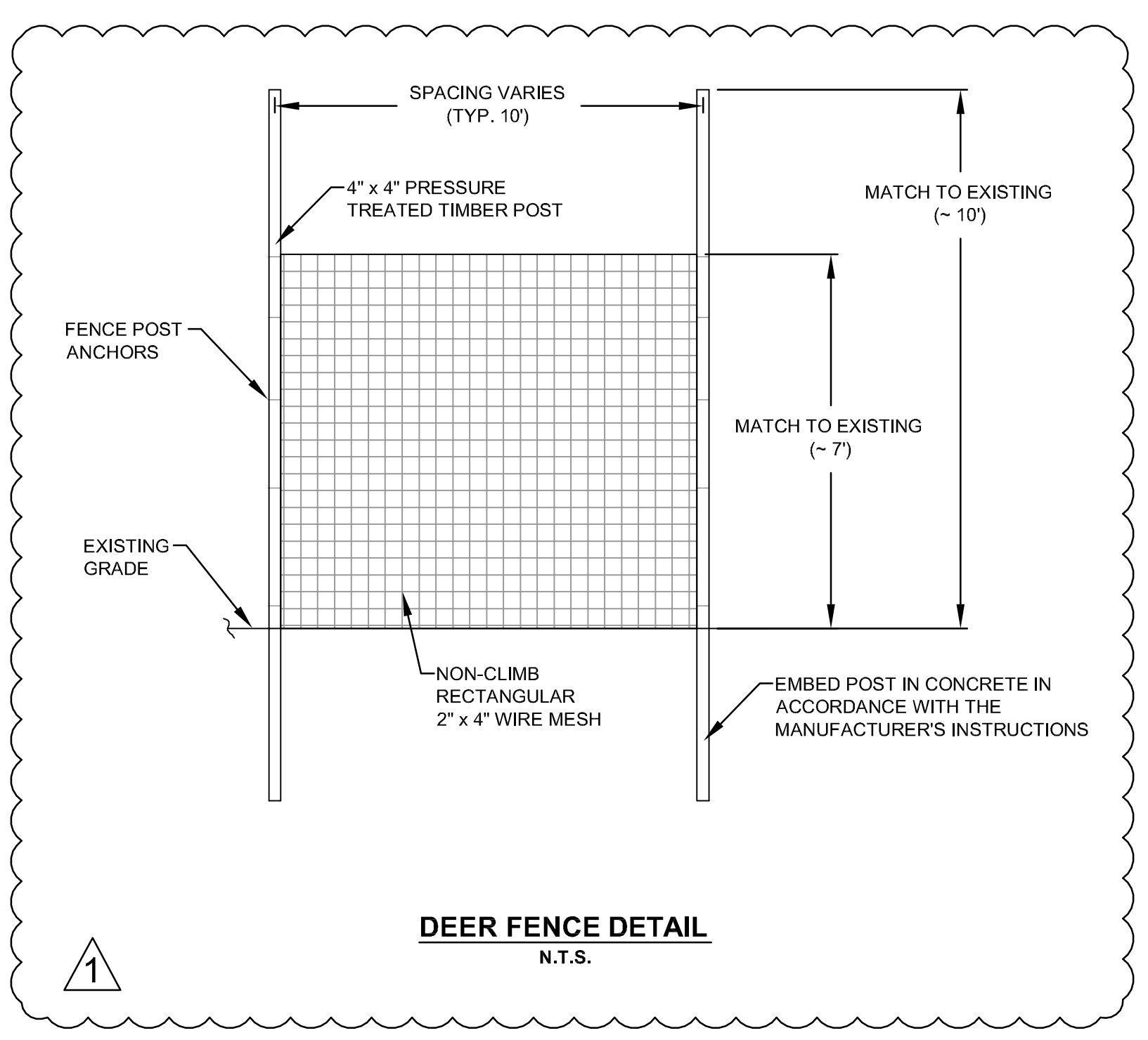
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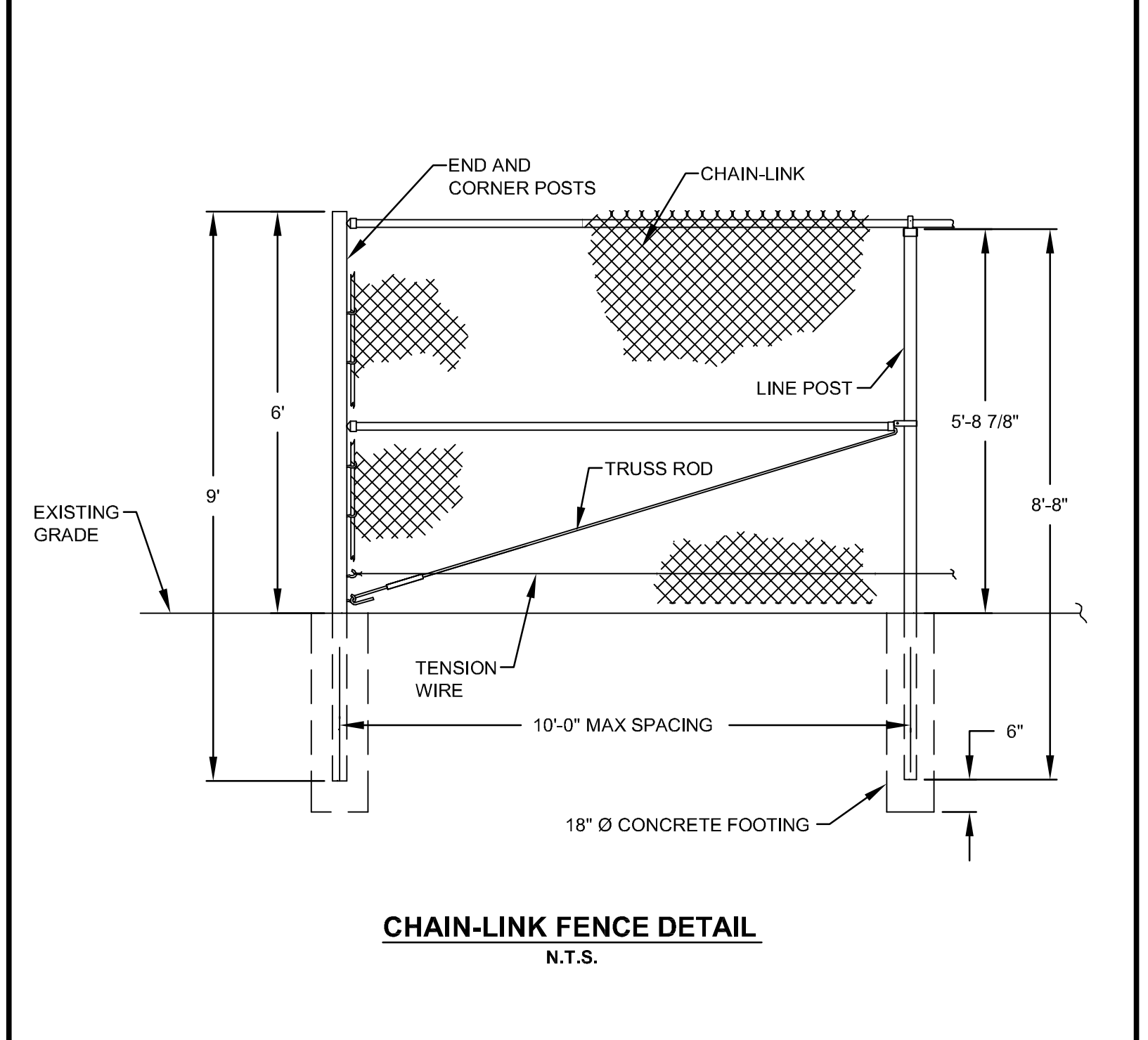
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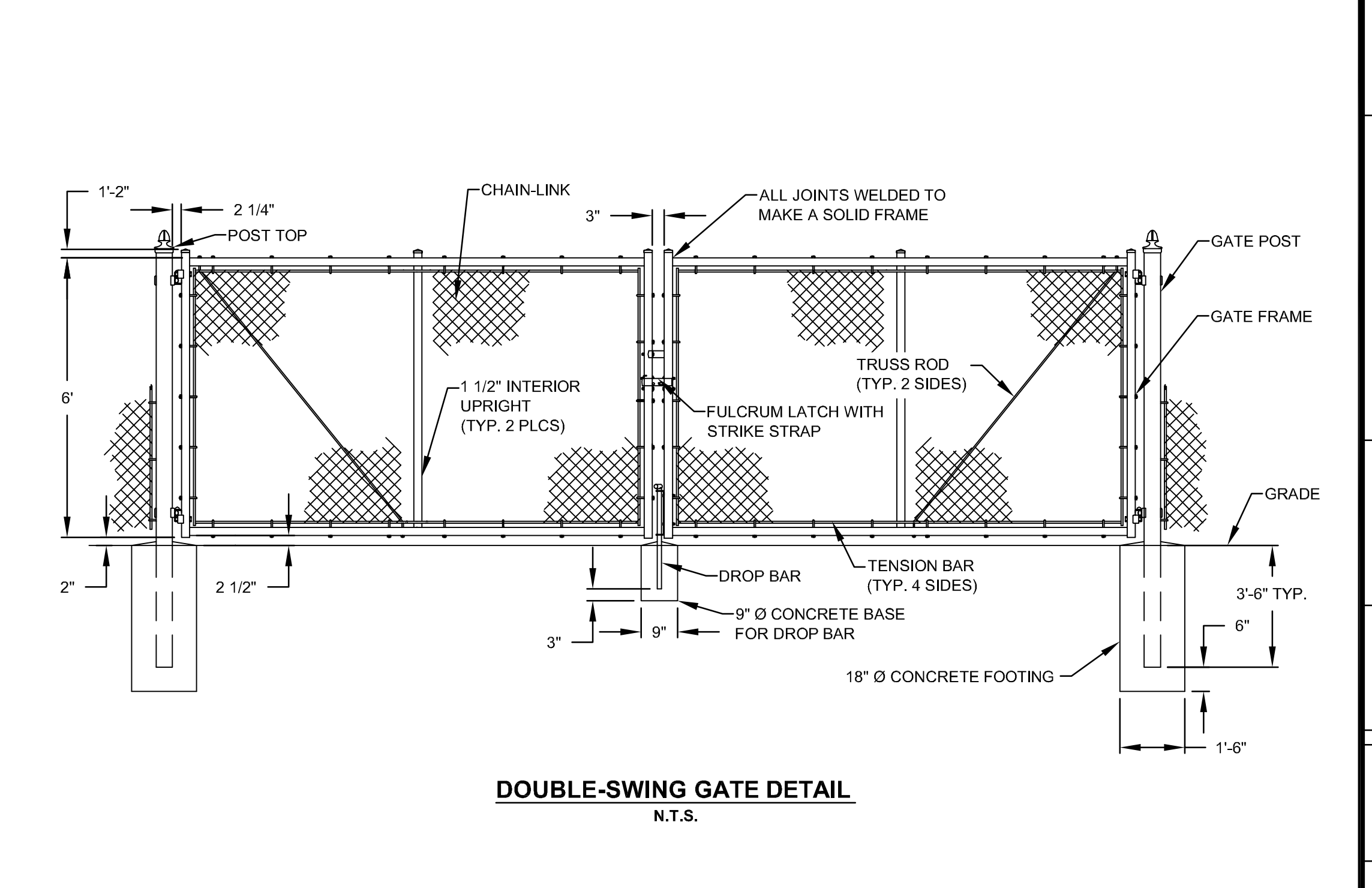
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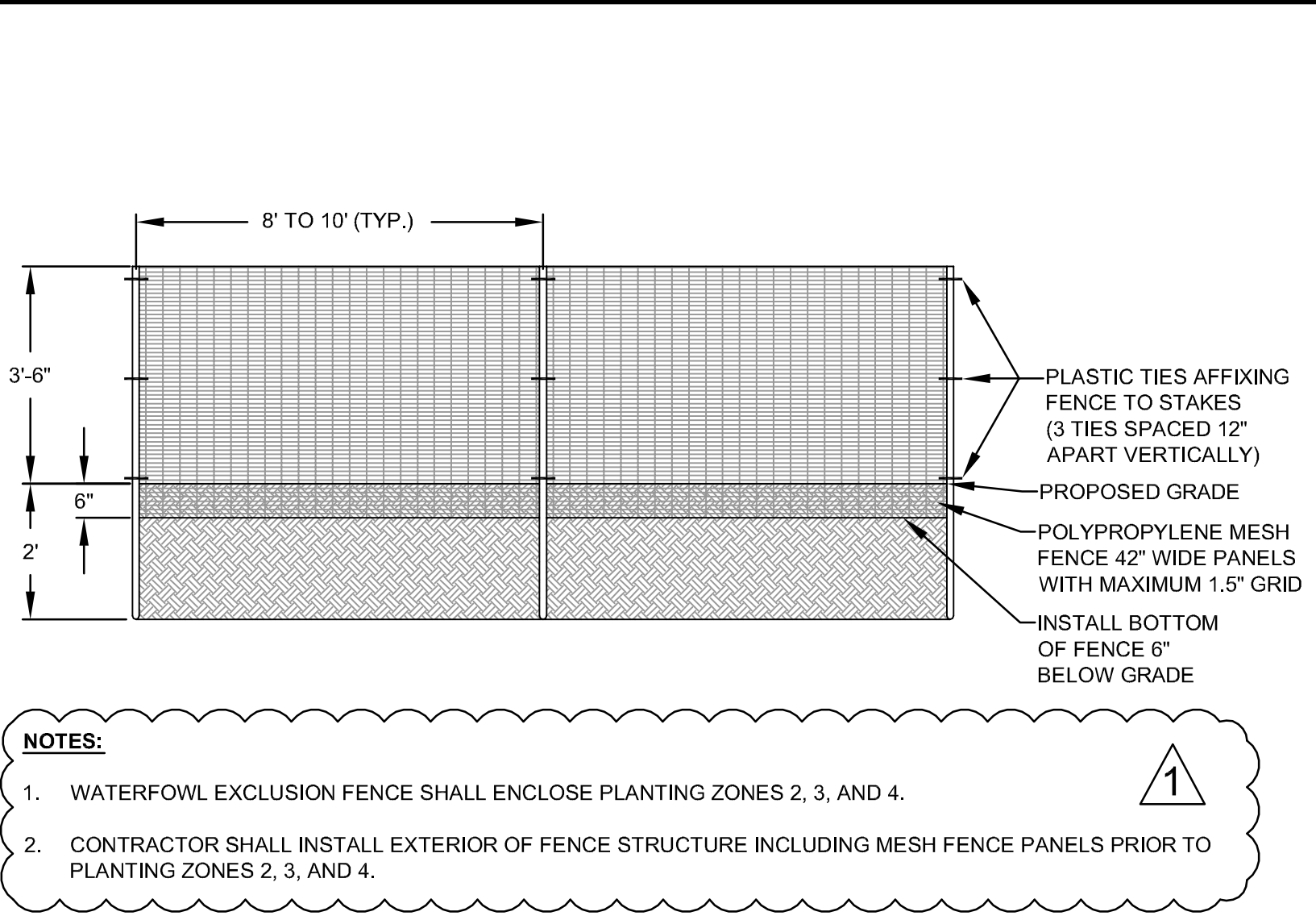
**DEER FENCE DETAIL**  
N.T.S.



**CHAIN-LINK FENCE DETAIL**  
N.T.S.

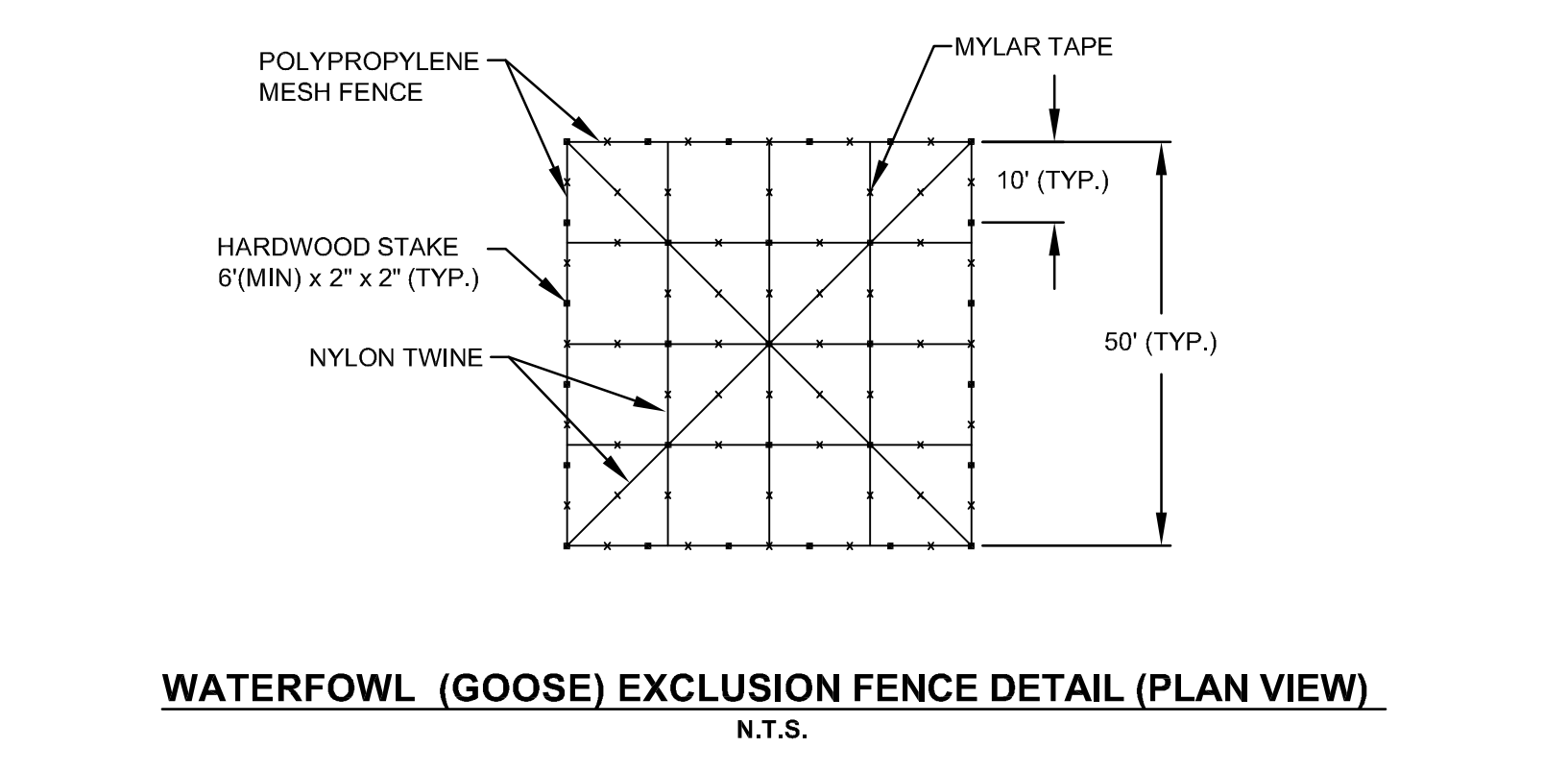


**DOUBLE-SWING GATE DETAIL**  
N.T.S.

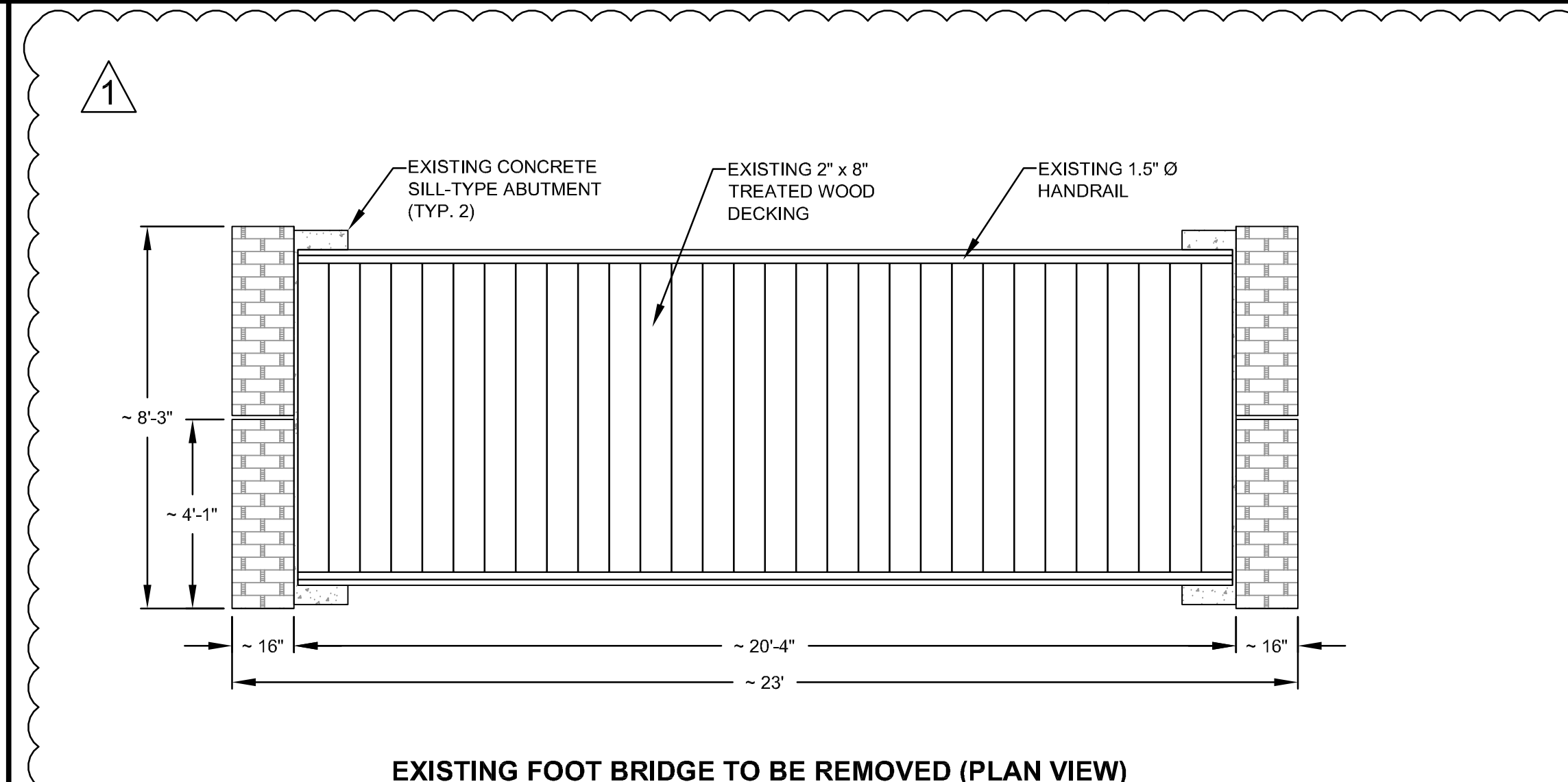


**WATERFOWL (GOOSE) EXCLUSION FENCE DETAIL (PROFILE)**  
N.T.S.

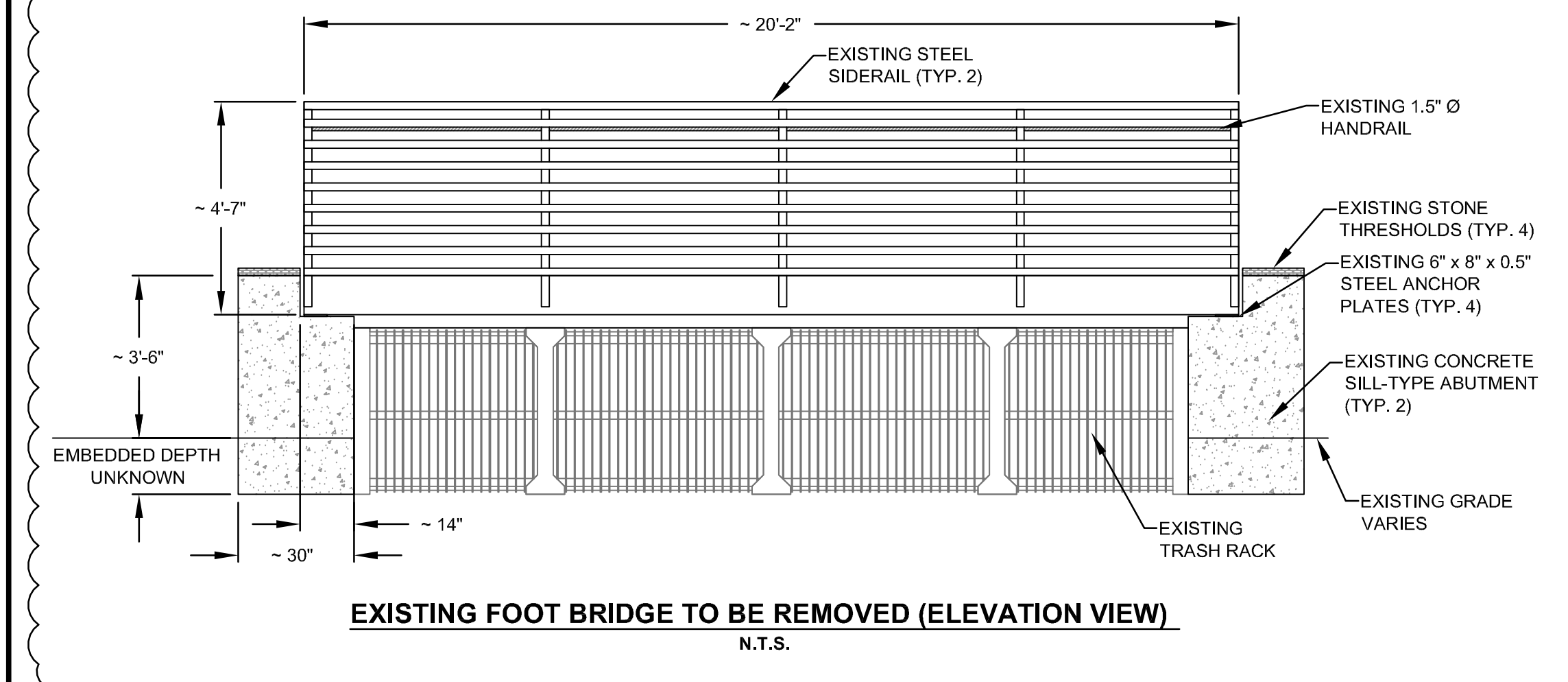
- NOTES:**
1. WATERFOWL EXCLUSION FENCE SHALL ENCLOSE PLANTING ZONES 2, 3, AND 4.
  2. CONTRACTOR SHALL INSTALL EXTERIOR OF FENCE STRUCTURE INCLUDING MESH FENCE PANELS PRIOR TO PLANTING ZONES 2, 3, AND 4.



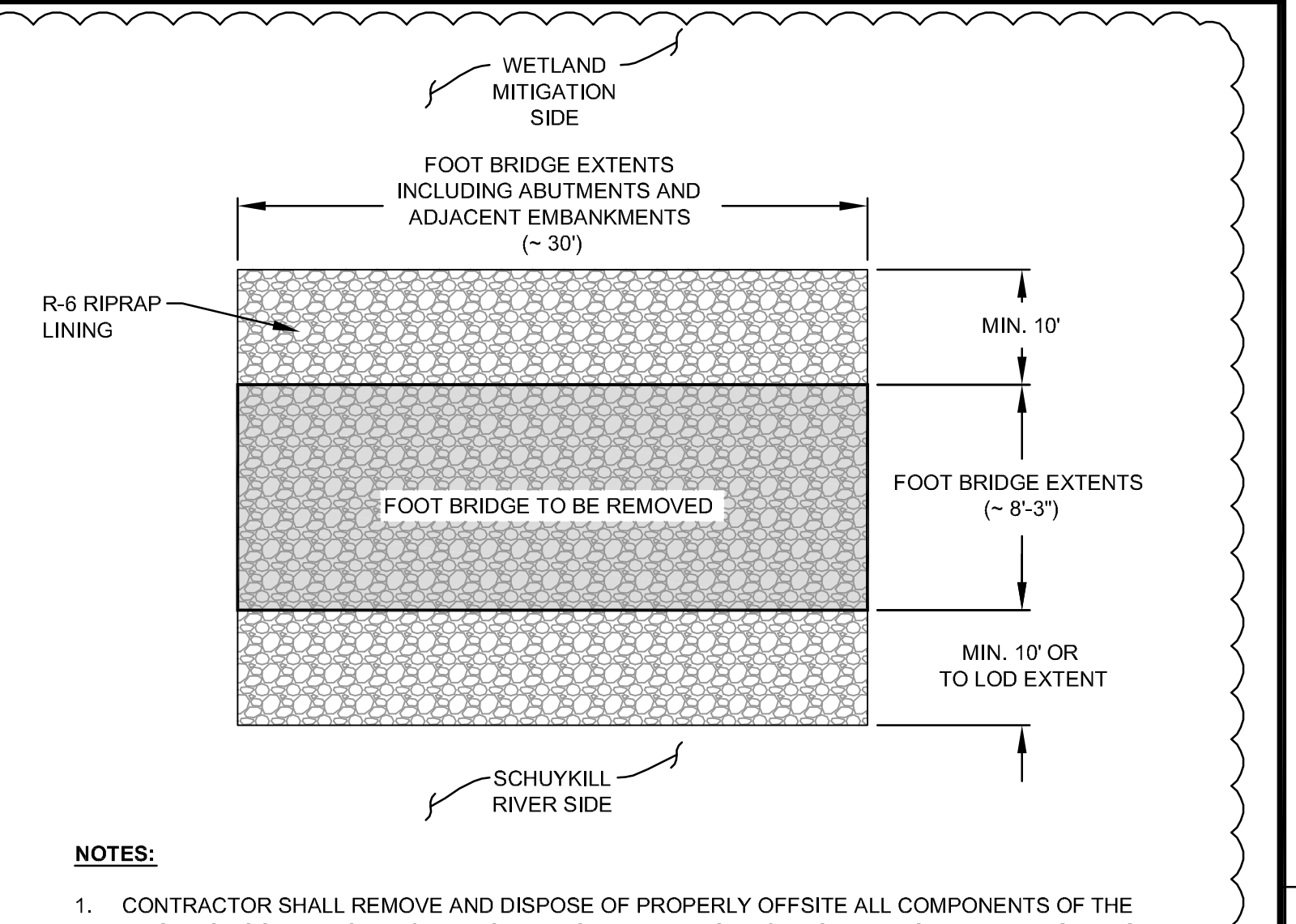
**WATERFOWL (GOOSE) EXCLUSION FENCE DETAIL (PLAN VIEW)**  
N.T.S.



**EXISTING FOOT BRIDGE TO BE REMOVED (PLAN VIEW)**  
N.T.S.



**EXISTING FOOT BRIDGE TO BE REMOVED (ELEVATION VIEW)**  
N.T.S.



**RIPRAP PLACEMENT AFTER FOOT BRIDGE REMOVAL**  
N.T.S.

- NOTES:**
1. CONTRACTOR SHALL REMOVE AND DISPOSE OF PROPERLY OFFSITE ALL COMPONENTS OF THE EXISTING FOOT BRIDGE, INCLUDING BUT NOT LIMITED TO DECKING, RAILING, ABUTMENTS, TRASH RACK, AND OTHER SUPPORTING STRUCTURES.
  2. AFTER REMOVAL OF THE EXISTING FOOT BRIDGE, THE CONTRACTOR SHALL INSTALL RIPRAP LINING TO THE GRADES AND EXTENTS SHOWN ON THE PLANS. THE FINISHED SURFACE OF THE RIPRAP LINING SHALL BE CONSISTENT WITH THE PROPOSED GRADING OF THE WETLAND MITIGATION PLAN OR MATCH EXISTING CONDITIONS IF BEYOND THE PROPOSED GRADING LIMITS.
  3. RIPRAP LINING SHALL INCLUDE INSTALLATION OF RIPRAP TO A DEPTH OF TWO TIMES THE AVERAGE RIPRAP THICKNESS UNDERLAIN BY A MIN. 8 OZ./SY NON-WOVEN NEEDLE-PUNCHED (NWNP) GEOTEXTILE FABRIC.

REVISION	DESCRIPTION	DATE
1	ADDENDUM NO. 1	02/05/13
0	ISSUED FOR BID	01/24/13

**WETLAND MITIGATION FOR TAXIWAY KILO EXTENSION BID SET**

**TYPICAL DETAILS**

JOB NO: 20835660 CHECKED: DG

DRAWN: JRJ DATE: 2013/01/14

WORK NO. PHL-1528.18

DRAWING NO.

**L2.03**