

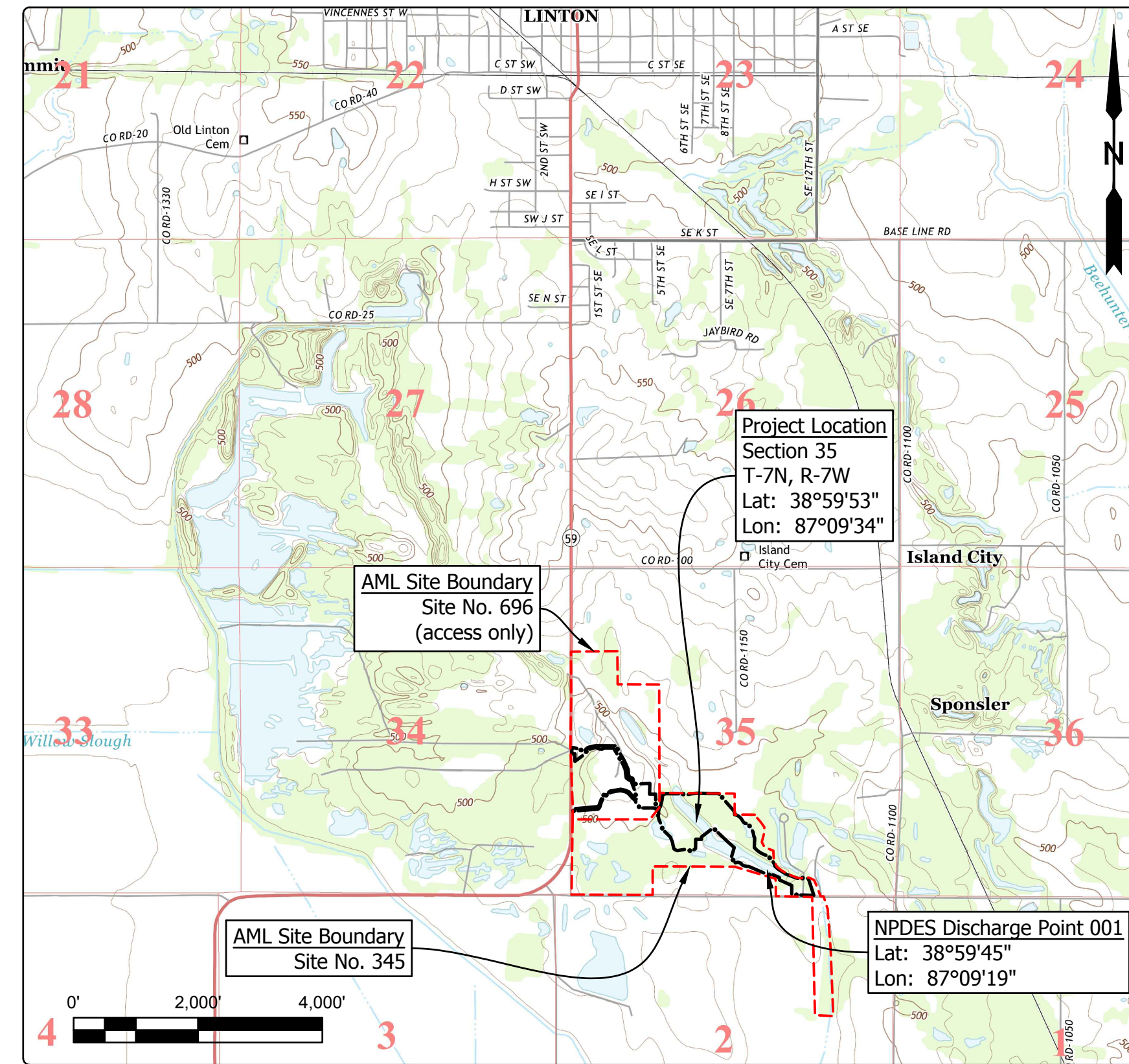
STATE OF INDIANA
INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION



ABANDONED COAL MINE
RESTORATION

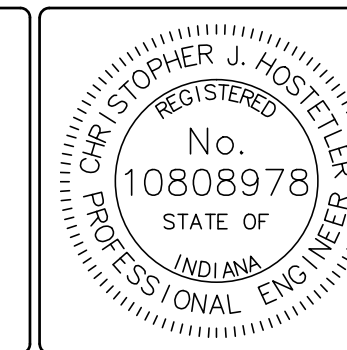
LINTON NO. 1
SITE 345
CONTRACT DEL1915208405/E008-304
GREENE COUNTY

Clear and grub, construct wetlands, and revegetate all disturbed areas.



Project Location Map
Linton & Sandborn US TOPO (USGS, 2013)

| GENERAL NOTES | |
|--|--|
| 2010 AML Standard Specifications to be used with these plans. | |
| Plans developed from LiDAR topographic mapping survey flown in 2011 by Williams Aerial & Mapping, Inc. in NAD 83, Indiana State Plane West, Feet. | |
| An NPDES discharge permit is required for this project. Additional NPDES discharge points can be added to facilitate construction sequencing. | |
| The Contractor shall not work Fridays after 4:00 PM, Saturdays, or Sundays unless otherwise approved by the Engineer. | |
| INDEX | |
| SHEET NO. | SHEET TITLE |
| 1 | TITLE, INDEX, & LOCATION MAP |
| 2 | SITE MAP |
| 3-4 | SITE PLANS |
| 5 | SECTIONS |
| 6 | REVEGETATION PLAN |
| 7-8 | DETAILS |
| UTILITIES | |
| The facilities of the following utilities exist near the project site but are not expected to be affected by the proposed construction. If questions arise, the utility may be contacted using the information below. | |
| <p>ELECTRIC:</p> <p>Utilities District of Western Indiana R.E.M.C. PO Box 427/Hwy. 54 West Bloomfield, IN 47424 (812) 384-5053</p> <p>Linton Municipal Utilities 86 South Main Street Linton, IN 47441 (812) 847-4971</p> <p>TELECOM:</p> <p>AT&T - Distribution 240 N. Meridian St., Rm 1791 Indianapolis, IN 46204 (317) 265-3050</p> <p>Smithville Telephone Company, Inc. 1600 W. Temperance St. Ellettsville, IN 47429 (812) 935-2423</p> | <p>NATURAL GAS:</p> <p>Linton Municipal Utilities 86 South Main Street Linton, IN 47441 (812) 847-4971</p> <p>WATER/SANITARY:</p> <p>Ellis Water PO Box 291 Linton, IN 47441 (812) 847-9898</p> <p>Linton Municipal Utilities 86 South Main Street Linton, IN 47441 (812) 847-4971</p> |
| Call Before You Dig. Indiana Underground Plant Protection Service (IUPPS) 1-800-382-5544 or 811 from your mobile phone. | |



PLANS PREPARED BY: INDIANA DEPARTMENT OF NATURAL RESOURCES (812) 665-2207
DIVISION OF RECLAMATION PHONE NUMBER

CERTIFIED BY: *Christopher J. Hostetler* 7/18/19
DATE

APPROVED FOR LETTING: *M. D. S. C.* 7/18/19
DATE
DIVISION OF RECLAMATION

SCALE
AS NOTED

PROJECT
E008-304

SHEET
1 OF 8

SITE
345




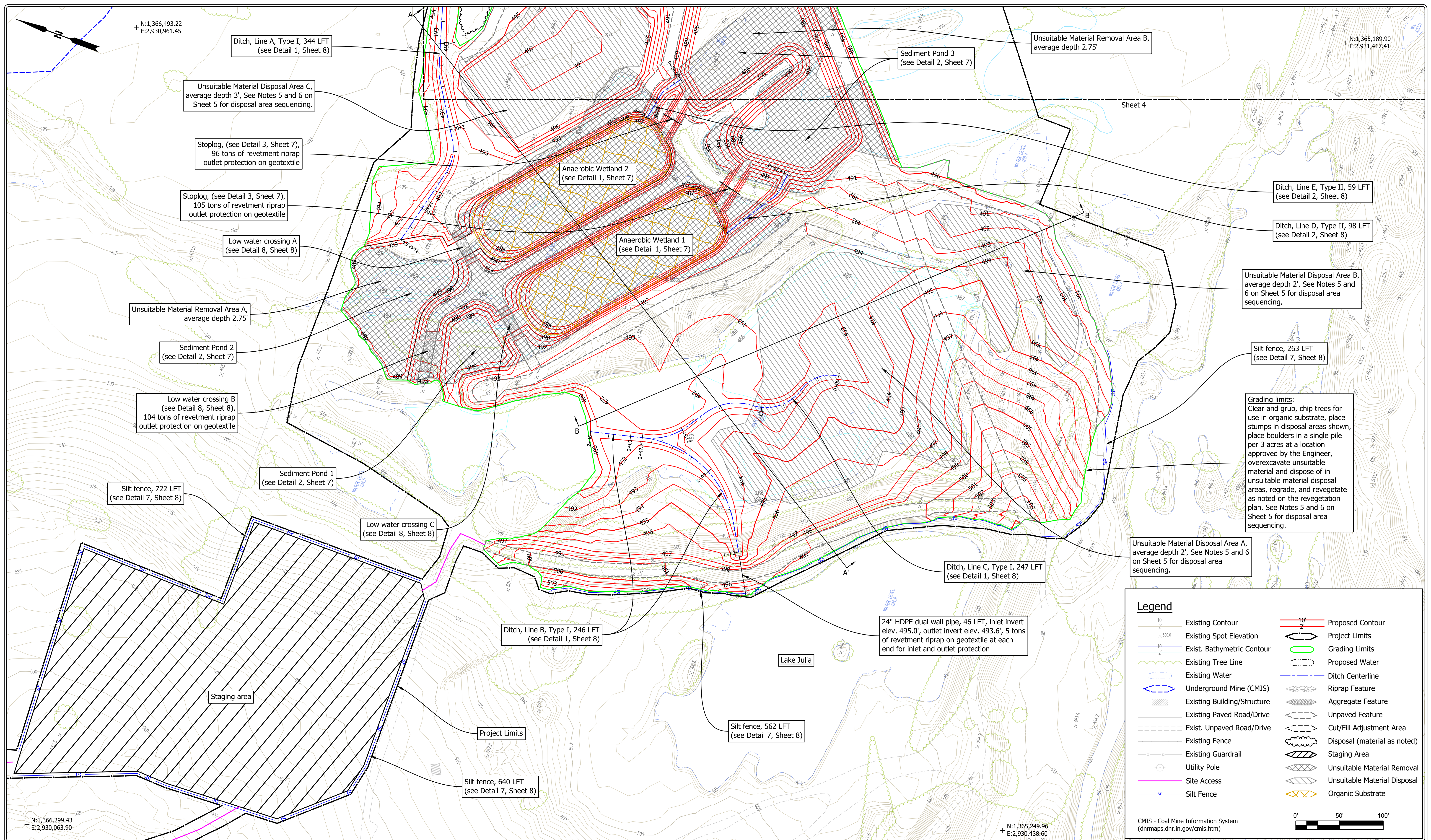
Legend

- - - AML Site Boundary
- - - AML Site Feature
- Project Limits
- Grading Limits
- Site Access
- Staging Area
- Sheet Index
- Underground Mine (CMIS)

CMIS - Coal Mine Information System
(dnrmmaps.dnr.in.gov/cmisis.htm)



| | | | | | | |
|---|--|--------------------|--------------------------------------|--|---------------------|-----------------|
|  | RECOMMENDED FOR APPROVAL: <i>Christopher J. Hostetler</i> 7/18/19 DATE | | DATE MADE 3/27/2019 | SITE MAP | SCALE 1" = 200' | SHEET 2 OF 8 |
| | DESIGNED BY C.J.H. | DRAWN BY C.J.H. | DATE REVISED 5/20/2019 4:18:51 PM | STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION | PROJECT E008-304 | SITE 345 |

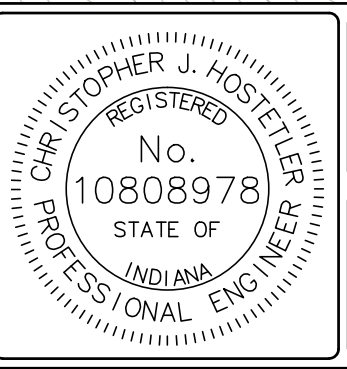


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 E:2,931,417.41

N:1,365,249.96
 E:2,930,438.60



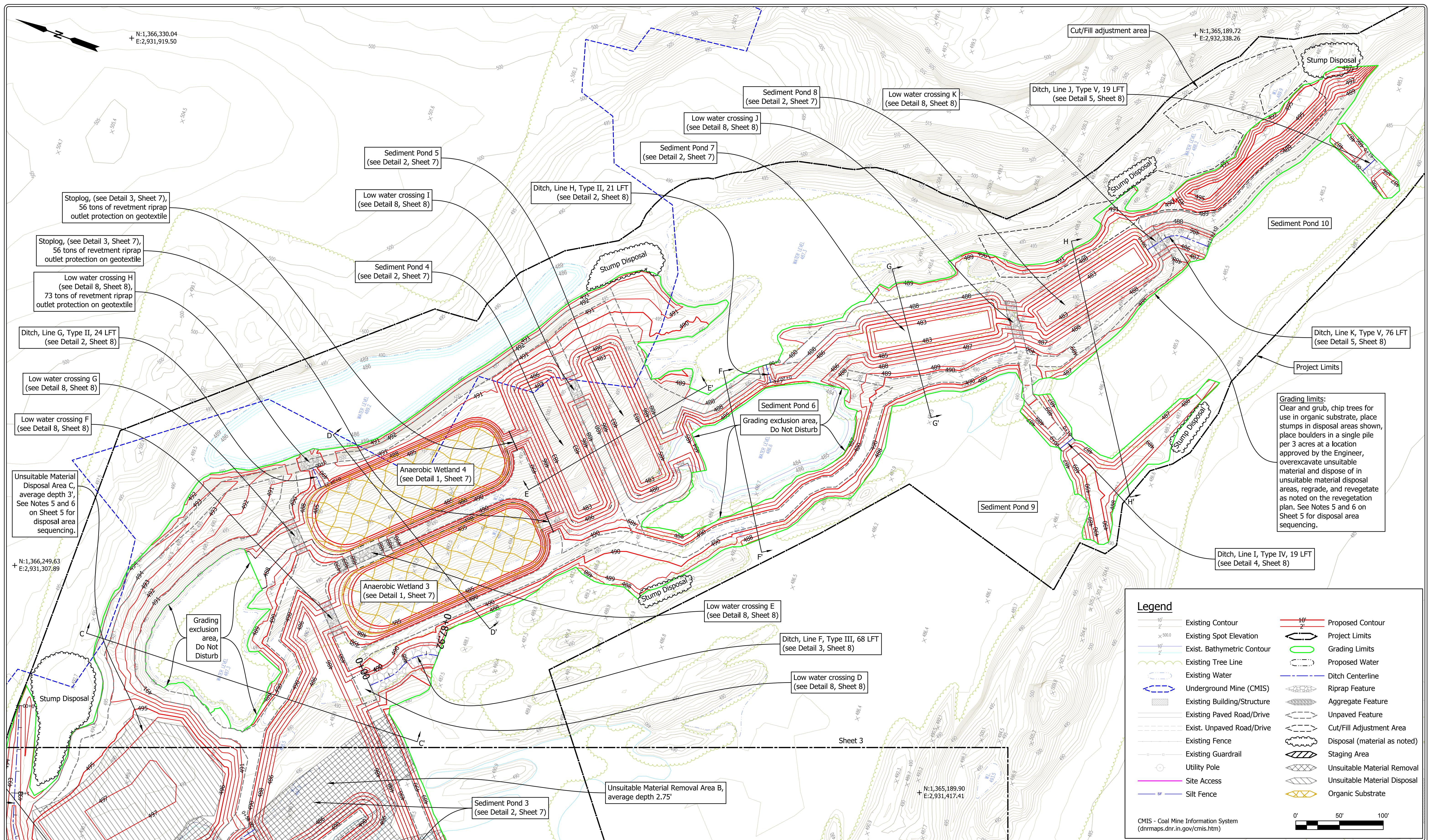
RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 7/18/19 DATE
 DESIGNED BY: C.J.H.
 DRAWN BY: C.J.H.

DATE MADE: 3/27/2019
 DATE REVISED: 5/20/2019 4:18:51 PM

SITE PLAN - WEST
 STATE OF INDIANA
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF RECLAMATION

SCALE: 1" = 50'
 PROJECT: E008-304

SHEET: 3 OF 8
 SITE: 345

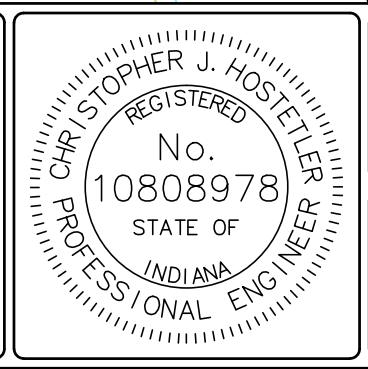


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N:1,365,189.72
 E:2,932,338.26



RECOMMENDED FOR APPROVAL: *Christopher J. Hodges* 7/18/19 DATE
 DESIGNED BY: C.J.H.
 DRAWN BY: C.J.H.

DATE MADE: 3/27/2019
 DATE REVISED: 5/20/2019 4:18:51 PM

SITE PLAN - EAST
 STATE OF INDIANA
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF RECLAMATION

SCALE: 1" = 50'
 PROJECT: E008-304

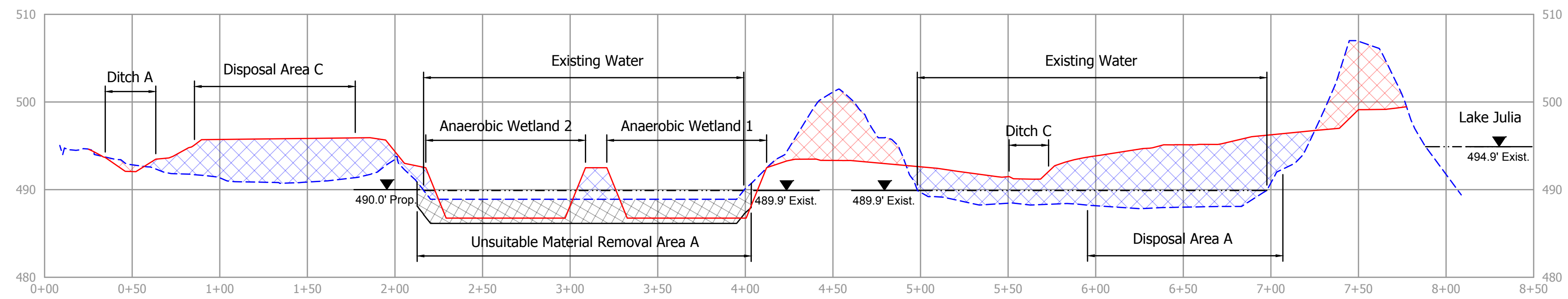
SHEET: 4 OF 8
 SITE: 345

Legend

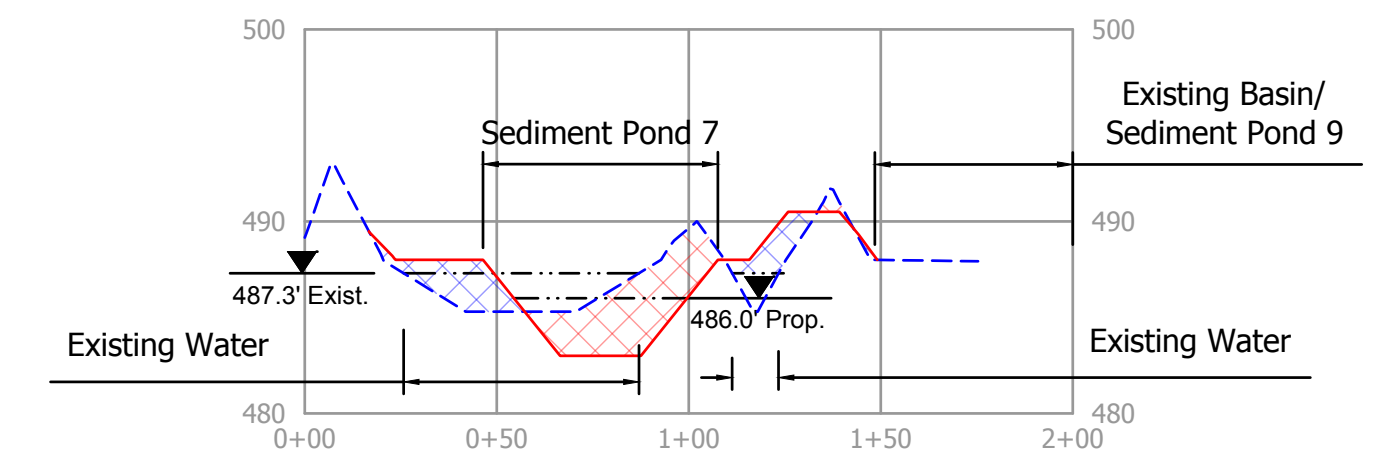
| | |
|-----------------------------|------------------------------|
| Existing Contour | Proposed Contour |
| Existing Spot Elevation | Project Limits |
| Exist. Bathymetric Contour | Grading Limits |
| Existing Tree Line | Proposed Water |
| Existing Water | Ditch Centerline |
| Underground Mine (CMIS) | Riprap Feature |
| Existing Building/Structure | Aggregate Feature |
| Existing Paved Road/Drive | Unpaved Feature |
| Exist. Unpaved Road/Drive | Cut/Fill Adjustment Area |
| Existing Fence | Disposal (material as noted) |
| Existing Guardrail | Staging Area |
| Utility Pole | Unsuitable Material Removal |
| Site Access | Unsuitable Material Disposal |
| Silt Fence | Organic Substrate |

CMIS - Coal Mine Information System
 (dnrmaps.dnr.in.gov/cmisis.htm)

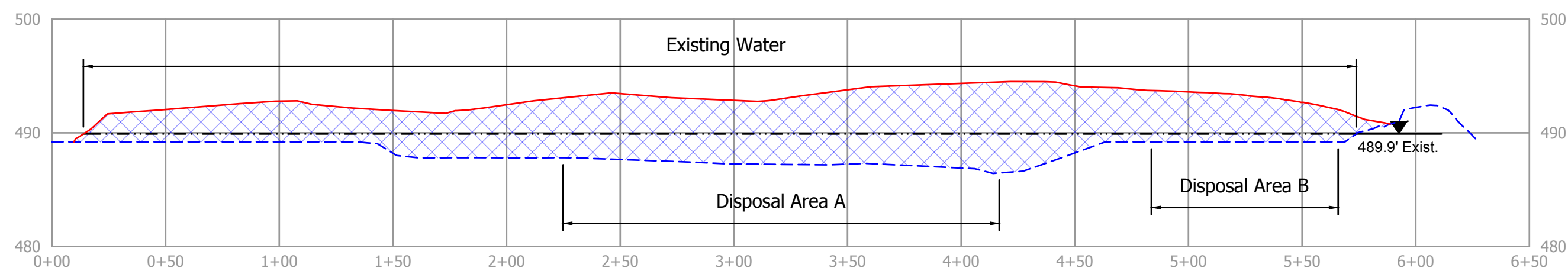
0' 50' 100'



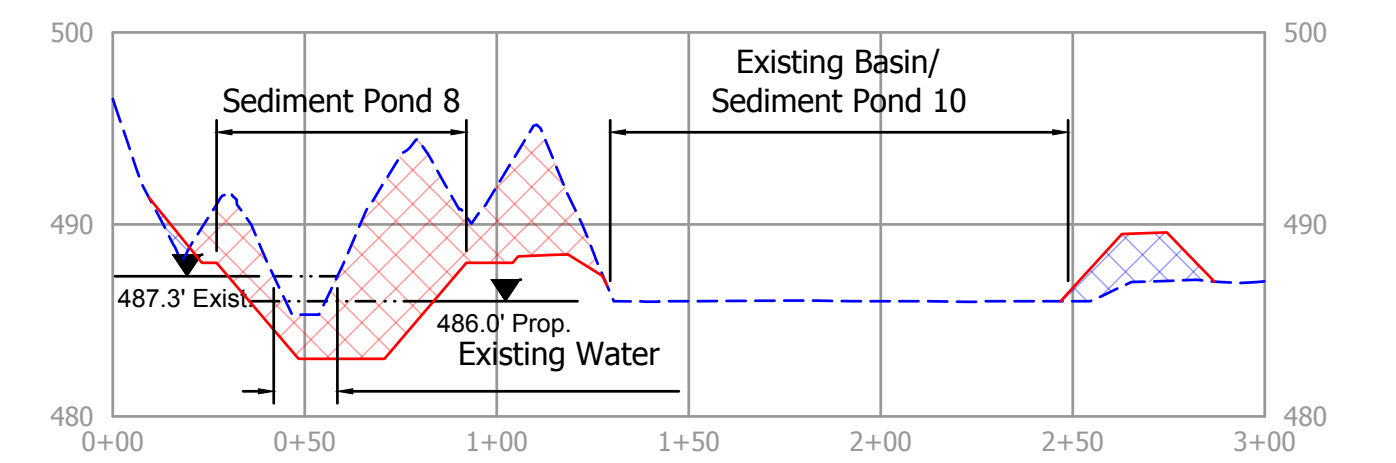
A Section A-A'
1" = 50' H, 10" V



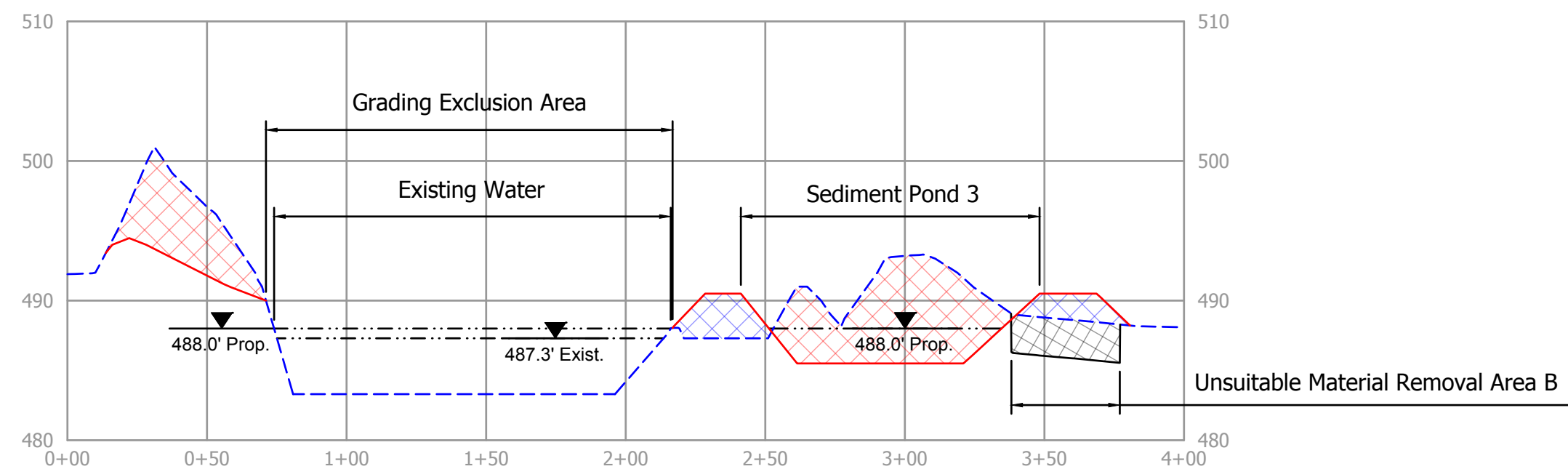
G Section G-G'
1" = 50' H, 10" V



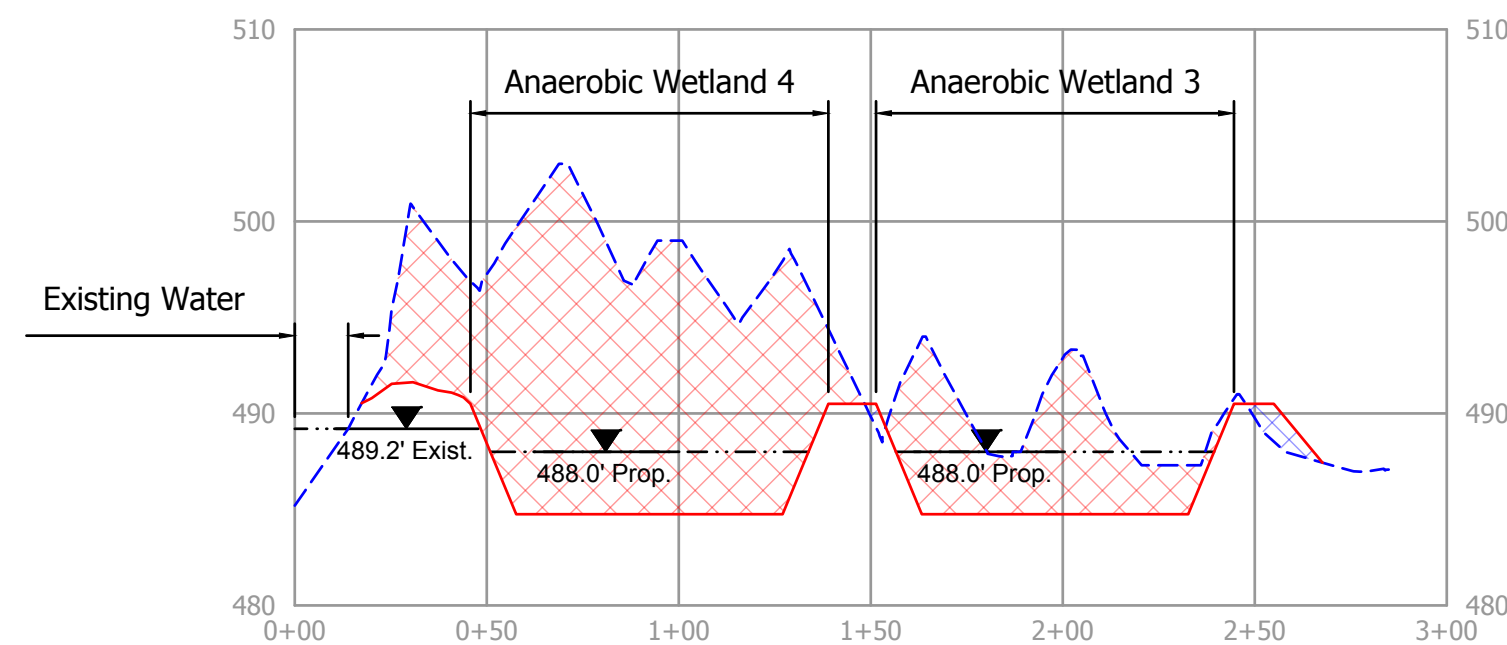
B Section B-B'
1" = 50' H, 10" V



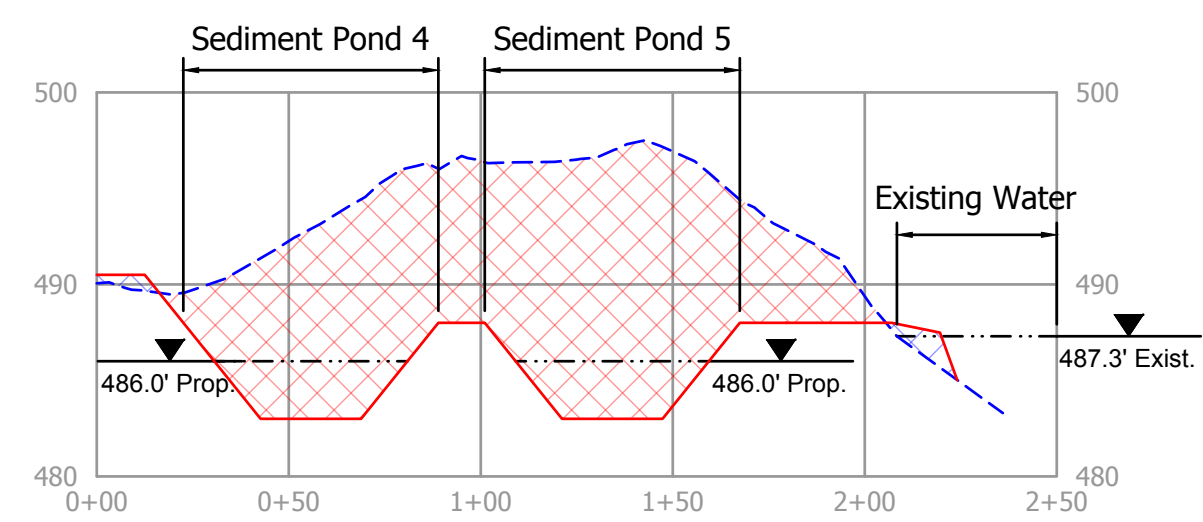
H Section H-H'
1" = 50' H, 10" V



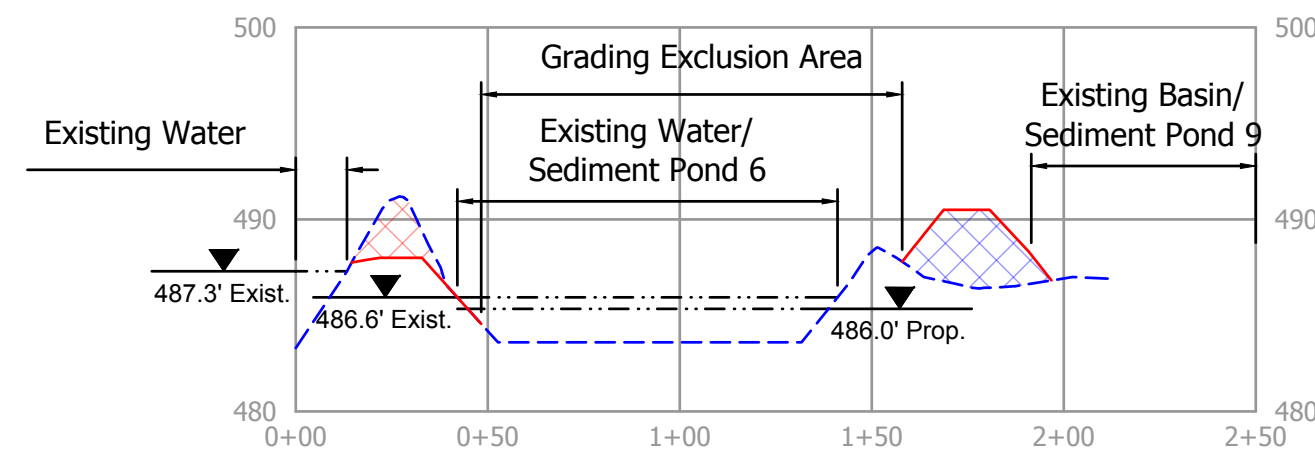
C Section C-C'
1" = 50' H, 10" V



D Section D-D'
1" = 50' H, 10" V



E Section E-E'
1" = 50' H, 10" V

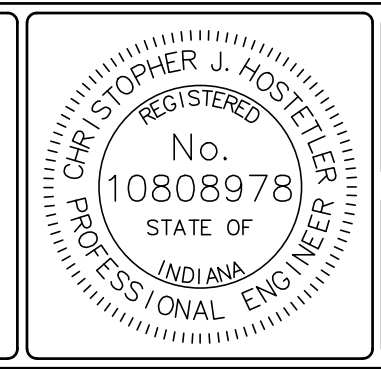


F Section F-F'
1" = 50' H, 10" V

- Notes:**
1. Unsuitable material is acid mine drainage floc, silt, coal refuse, or any other material determined by the Engineer requiring removal from and disposal in the identified areas. An average unsuitable removal depth of 2.75' and an unsuitable material shrink percentage of 30% was used in the earthwork calculations.
 2. All unsuitable material, except coal refuse, shall be dried, incorporated with suitable material, and placed in the fill portions of the disposal areas.
 3. Coal refuse material shall be placed in disposal areas and capped with at least 2' of cover material.
 4. Disposal Area A shall be completely utilized prior to placing unsuitable material in Disposal Areas B or C.
 5. Disposal Area B shall completely utilized prior to placing unsuitable material in Disposal Area C.

Legend

- Existing Grade
- Design Grade
- Water Elevation
- Cut
- Fill
- Unsuitable Material Removal



RECOMMENDED FOR APPROVAL: *Christopher J. Hodzicki* 7/18/19 DATE

DESIGNED BY: C.J.H. DRAWN BY: C.J.H.

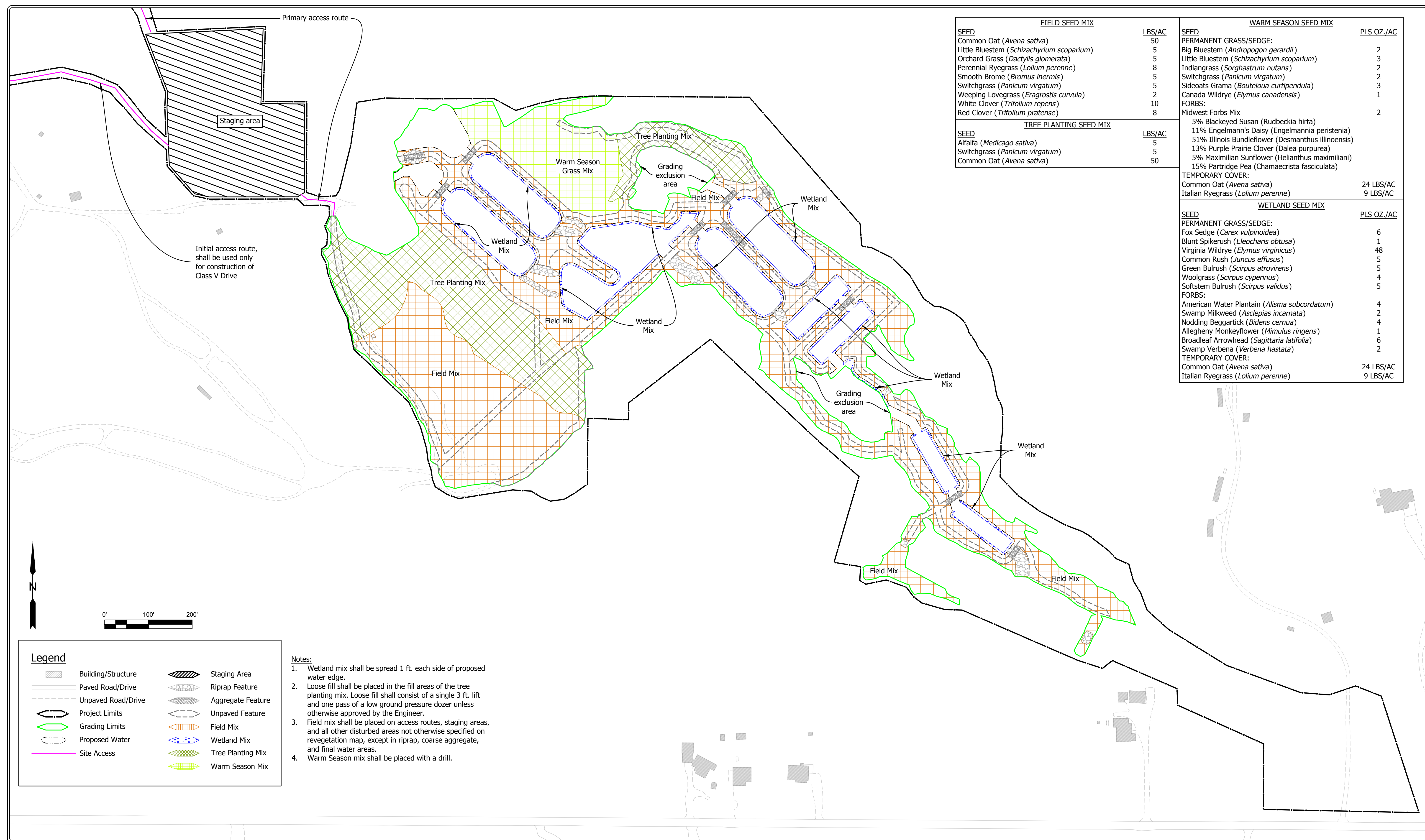
DATE MADE: 3/27/2019 DATE REVISED: 5/20/2019 4:18:51 PM

SECTIONS: STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION

SCALE: AS NOTED PROJECT: E008-304

SHEET: 5 OF 8 SITE: 345

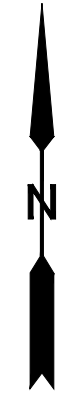
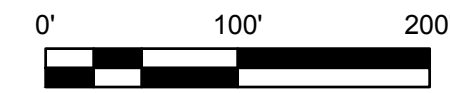
| FIELD SEED MIX | | WARM SEASON SEED MIX | |
|--|--------|---|------------|
| SEED | LBS/AC | SEED | PLS OZ./AC |
| Common Oat (<i>Avena sativa</i>) | 50 | PERMANENT GRASS/SEDGE: | |
| Little Bluestem (<i>Schizachyrium scoparium</i>) | 5 | Big Bluestem (<i>Andropogon gerardii</i>) | 2 |
| Orchard Grass (<i>Dactylis glomerata</i>) | 5 | Little Bluestem (<i>Schizachyrium scoparium</i>) | 3 |
| Perennial Ryegrass (<i>Lolium perenne</i>) | 8 | Indiangrass (<i>Sorghastrum nutans</i>) | 2 |
| Smooth Brome (<i>Bromus inermis</i>) | 5 | Switchgrass (<i>Panicum virgatum</i>) | 2 |
| Switchgrass (<i>Panicum virgatum</i>) | 5 | Sideoats Grama (<i>Bouteloua curtipendula</i>) | 3 |
| Weeping Lovegrass (<i>Eragrostis curvula</i>) | 2 | Canada Wildrye (<i>Elymus canadensis</i>) | 1 |
| White Clover (<i>Trifolium repens</i>) | 10 | FORBS: | |
| Red Clover (<i>Trifolium pratense</i>) | 8 | Midwest Forbs Mix | 2 |
| TREE PLANTING SEED MIX | | 5% Blackeyed Susan (<i>Rudbeckia hirta</i>) | |
| SEED | LBS/AC | 11% Engelmann's Daisy (<i>Engelmannia peristenia</i>) | |
| Alfalfa (<i>Medicago sativa</i>) | 5 | 51% Illinois Bundleflower (<i>Desmanthus illinoensis</i>) | |
| Switchgrass (<i>Panicum virgatum</i>) | 5 | 13% Purple Prairie Clover (<i>Dalea purpurea</i>) | |
| Common Oat (<i>Avena sativa</i>) | 50 | 5% Maximilian Sunflower (<i>Helianthus maximiliani</i>) | |
| | | 15% Partridge Pea (<i>Chamaecrista fasciculata</i>) | |
| | | TEMPORARY COVER: | |
| | | Common Oat (<i>Avena sativa</i>) | 24 LBS/AC |
| | | Italian Ryegrass (<i>Lolium perenne</i>) | 9 LBS/AC |
| | | WETLAND SEED MIX | |
| | | SEED | PLS OZ./AC |
| | | PERMANENT GRASS/SEDGE: | |
| | | Fox Sedge (<i>Carex vulpinoidea</i>) | 6 |
| | | Blunt Spikerush (<i>Eleocharis obtusa</i>) | 1 |
| | | Virginia Wildrye (<i>Elymus virginicus</i>) | 48 |
| | | Common Rush (<i>Juncus effusus</i>) | 5 |
| | | Green Bulrush (<i>Scirpus atrovirens</i>) | 5 |
| | | Woolgrass (<i>Scirpus cyperinus</i>) | 4 |
| | | Softstem Bulrush (<i>Scirpus validus</i>) | 5 |
| | | FORBS: | |
| | | American Water Plantain (<i>Alisma subcordatum</i>) | 4 |
| | | Swamp Milkweed (<i>Asclepias incarnata</i>) | 2 |
| | | Nodding Beggartick (<i>Bidens cernua</i>) | 4 |
| | | Allegheny Monkeyflower (<i>Mimulus ringens</i>) | 1 |
| | | Broadleaf Arrowhead (<i>Sagittaria latifolia</i>) | 6 |
| | | Swamp Verbena (<i>Verbena hastata</i>) | 2 |
| | | TEMPORARY COVER: | |
| | | Common Oat (<i>Avena sativa</i>) | 24 LBS/AC |
| | | Italian Ryegrass (<i>Lolium perenne</i>) | 9 LBS/AC |



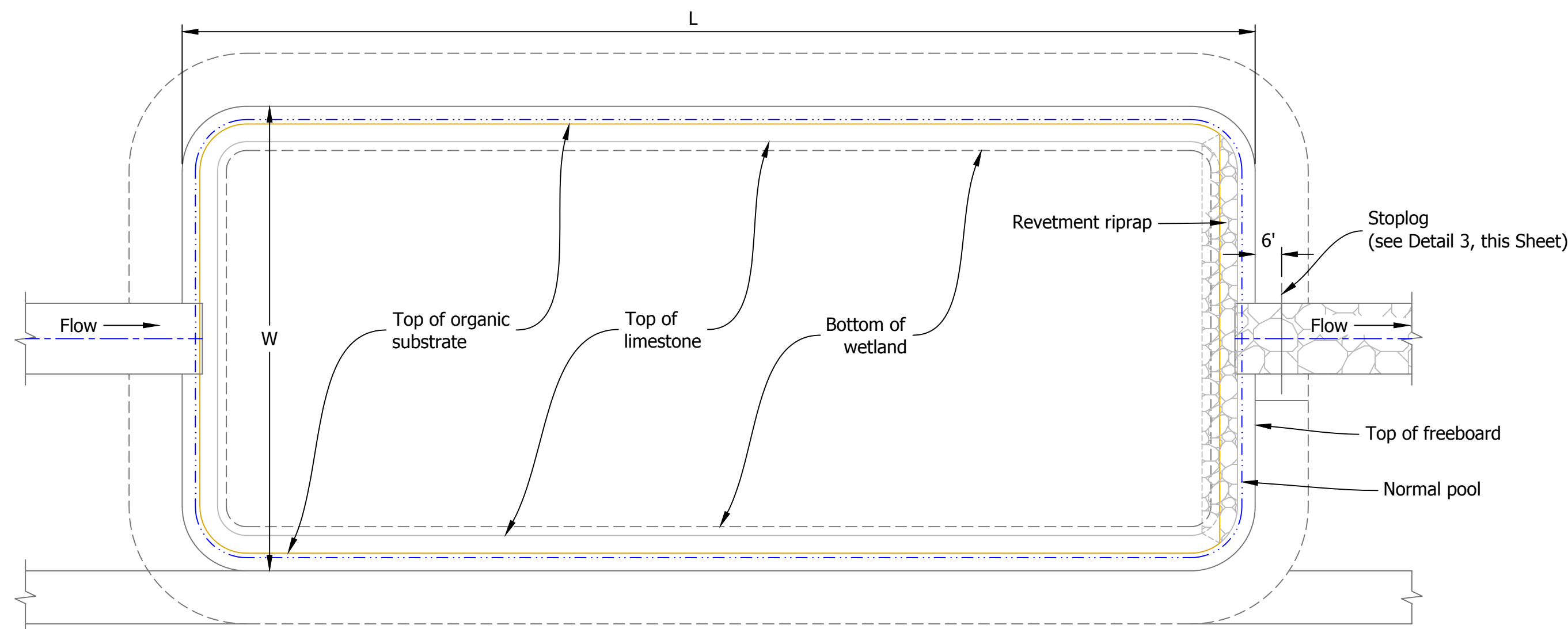
Legend

| | | | |
|--|--------------------|--|-------------------|
| | Building/Structure | | Staging Area |
| | Paved Road/Drive | | Riprap Feature |
| | Unpaved Road/Drive | | Aggregate Feature |
| | Project Limits | | Unpaved Feature |
| | Grading Limits | | Field Mix |
| | Proposed Water | | Wetland Mix |
| | Site Access | | Tree Planting Mix |
| | | | Warm Season Mix |

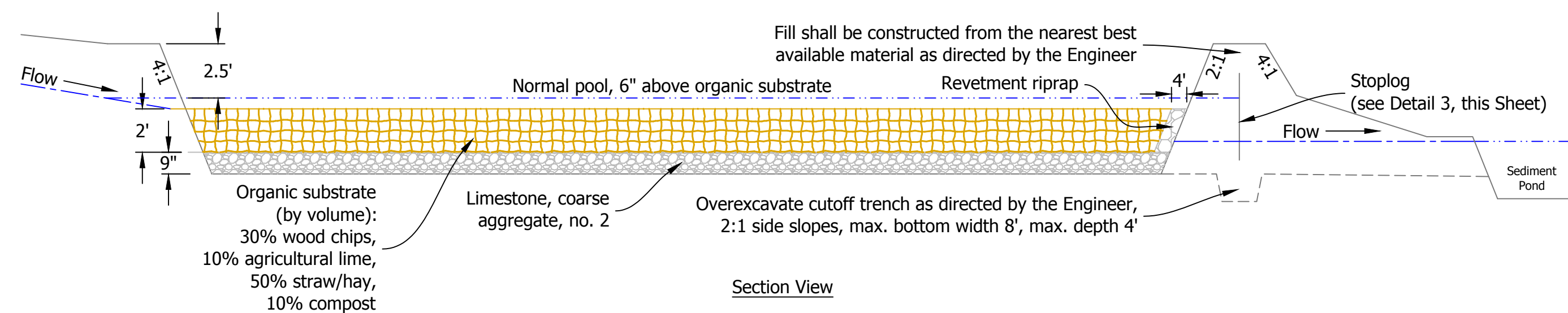
- Notes:**
1. Wetland mix shall be spread 1 ft. each side of proposed water edge.
 2. Loose fill shall be placed in the fill areas of the tree planting mix. Loose fill shall consist of a single 3 ft. lift and one pass of a low ground pressure dozer unless otherwise approved by the Engineer.
 3. Field mix shall be placed on access routes, staging areas, and all other disturbed areas not otherwise specified on revegetation map, except in riprap, coarse aggregate, and final water areas.
 4. Warm Season mix shall be placed with a drill.



| | | | | | |
|--|--|------------------------|---|--------------------------------------|---------------------|
| | RECOMMENDED FOR APPROVAL: <i>Christopher J. Hostetler</i> 7/18/19 DATE | DATE MADE 3/27/2019 | REVEGETATION PLAN STATE OF INDIANA DEPARTMENT OF NATURAL RESOURCES DIVISION OF RECLAMATION | SCALE 1" = 100' | SHEET 6 OF 8 |
| | DESIGNED BY C.J.H. | DRAWN BY C.J.H. | | DATE REVISED 5/20/2019 4:18:51 PM | PROJECT E008-304 |



Plan View



Section View

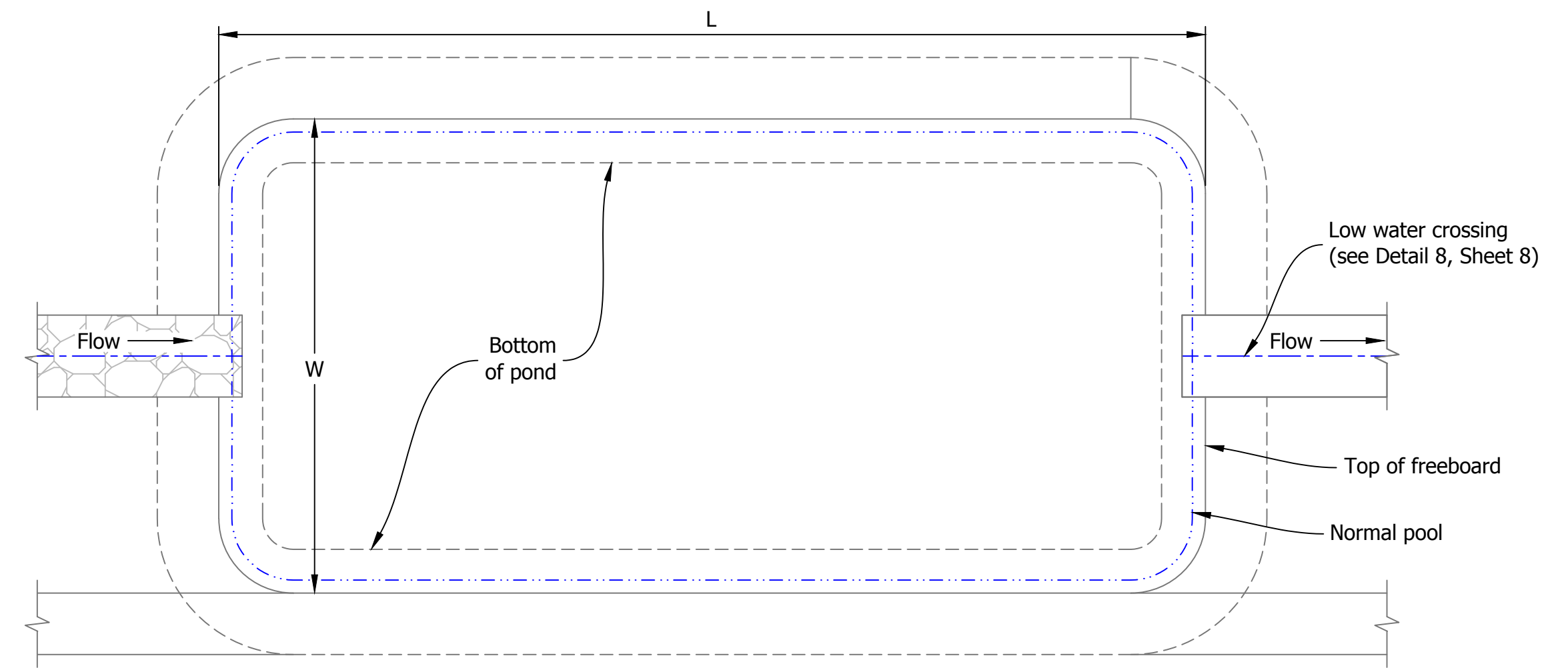
1 Anaerobic Wetland
Not to Scale

Anaerobic Wetland Information

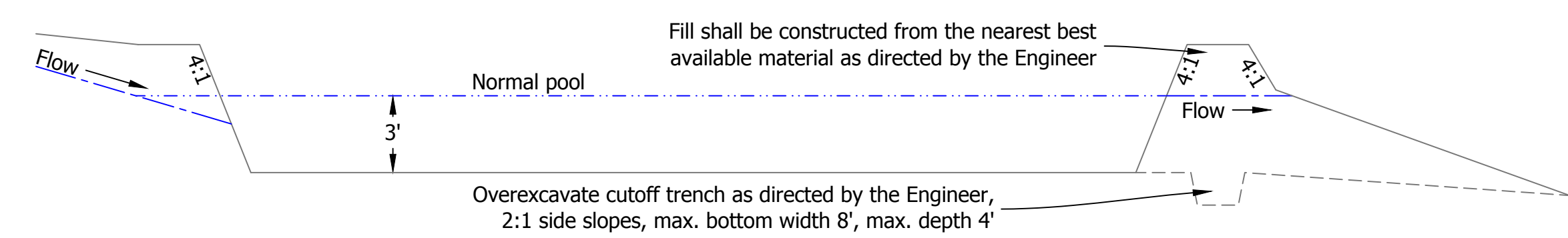
| Wetland | Dimensions, L x W | Freeboard Elev. | Normal Pool Elev. | Top of Organic Substrate Elev. | Top of Limestone Elev. | Bottom of Wetland Elev. | Stoplog Elev. at Base of Footer |
|---------|-------------------|-----------------|-------------------|--------------------------------|------------------------|-------------------------|---------------------------------|
| 1 | 270' x 90' | 492.5' | 490.0' | 489.5' | 487.5' | 486.75' | 487.0' |
| 2 | 260' x 90' | 492.5' | 490.0' | 489.5' | 487.5' | 486.75' | 487.0' |
| 3 | 260' x 90' | 490.5' | 488.0' | 487.5' | 485.5' | 484.75' | 485.0' |
| 4 | 260' x 90' | 490.5' | 488.0' | 487.5' | 485.5' | 484.75' | 485.0' |

Sediment Pond Information

| Pond | Dimensions, L x W | Freeboard Elev. | Normal Pool Elev. | Bottom of Pond Elev. |
|------|-------------------|-----------------|-------------------|----------------------|
| 1 | Varies | 492.5' | 490.0' | 487.0' |
| 2 | Varies | 492.5' | 490.0' | 487.0' |
| 3 | Varies | 490.5' | 488.0' | 485.0' |
| 4 | 190' x 66' | 488.0' | 486.0' | 483.0' |
| 5 | 190' x 66' | 488.0' | 486.0' | 483.0' |
| 7 | 173' x 61' | 488.0' | 486.0' | 483.0' |
| 8 | 173' x 61' | 488.0' | 486.0' | 483.0' |



Plan View

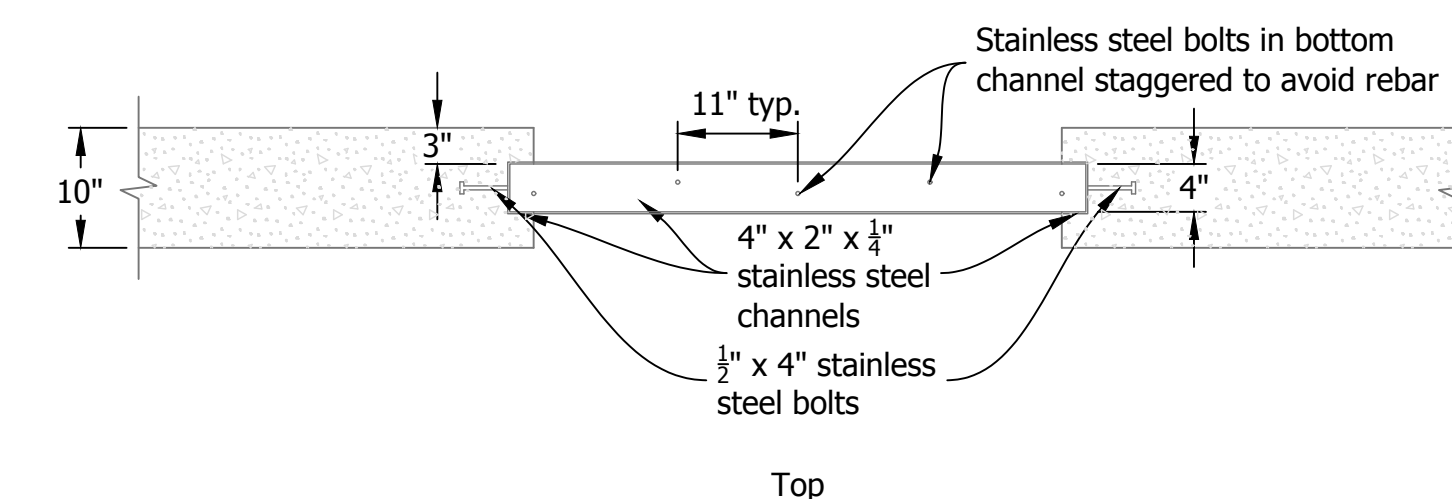


Section View

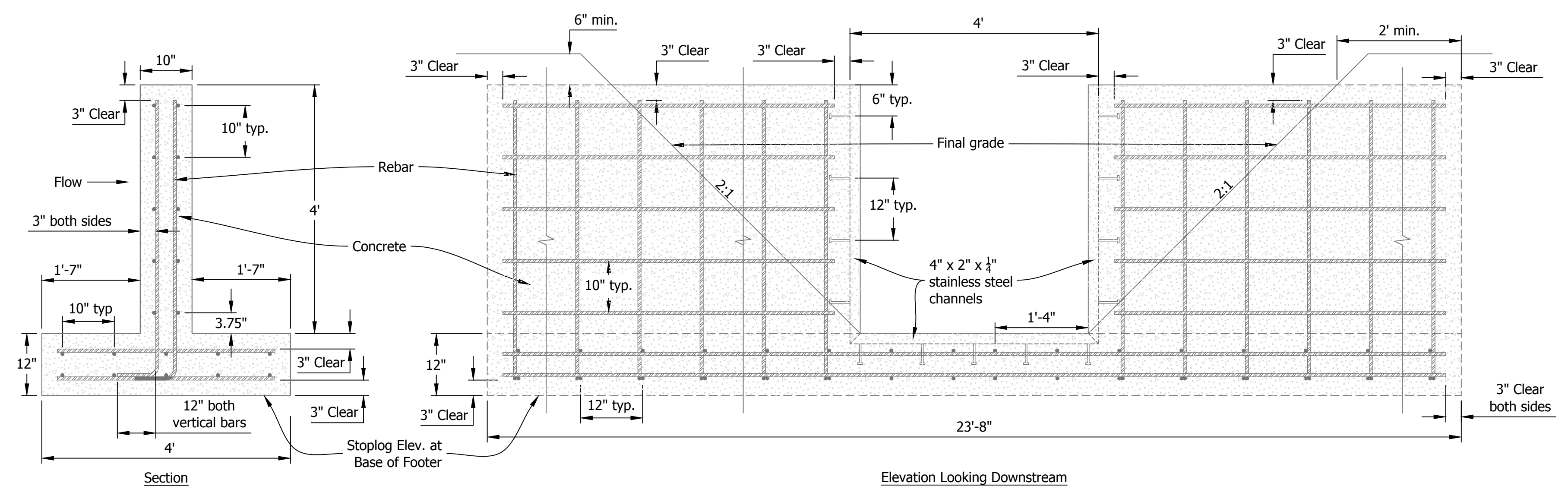
2 Sediment Pond
Not to Scale

Stoplog Notes:

- All rebar shall be Size #5 and Grade 60 and rebar bends shall be 3" in diameter.
- Pressure treated lumber shall be provided as stoplogs and installed in two stacks in the stainless steel channels for each structure up to the normal pool elevation.
- Stoplogs shall be 2" x 12" x 4', except for the first log on the downstream side which shall be 2" x 6" x 4' so the stacks are staggered.
- The top stoplog in each stack shall be cut to the normal pool elevation.
- Stainless Steel shall be Grade 304.



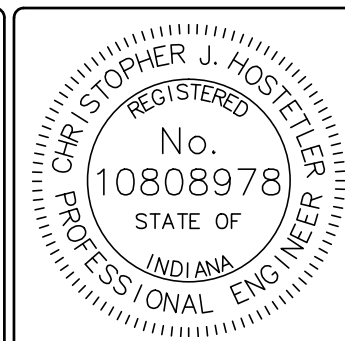
Top



Section

Elevation Looking Downstream

3 Stoplog Structure
Not to Scale



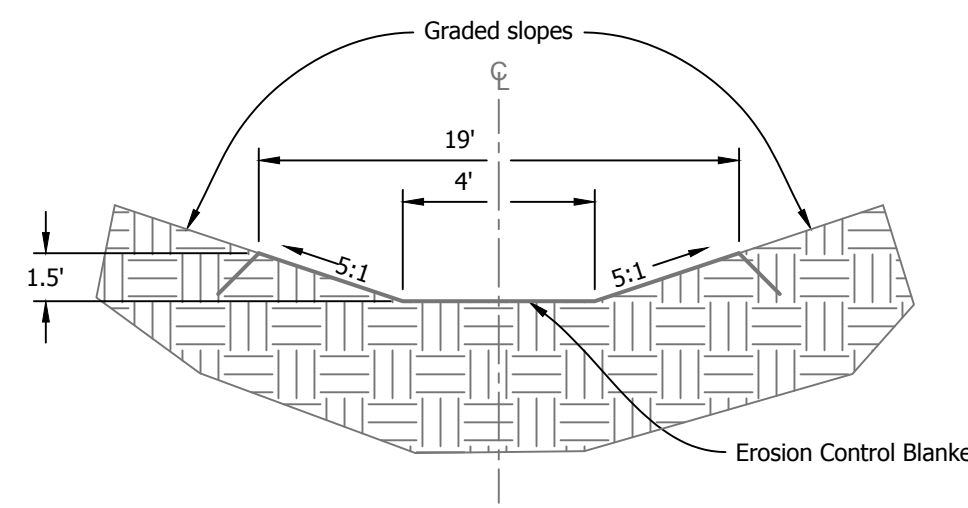
RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 7/18/19 DATE
 DESIGNED BY: C.J.H.
 DRAWN BY: C.J.H.

DATE MADE: 3/27/2019
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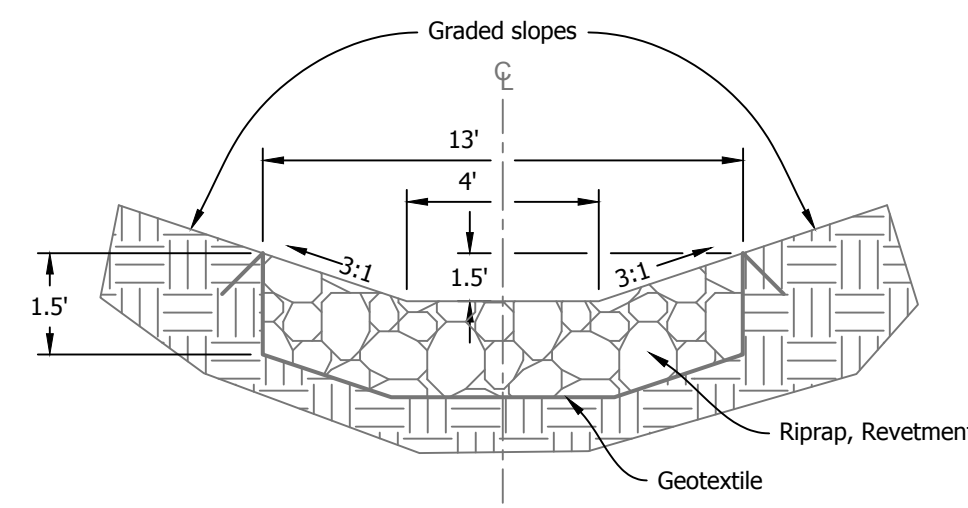
DETAILS
 STATE OF INDIANA
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF RECLAMATION

SCALE: AS NOTED
 PROJECT: E008-304

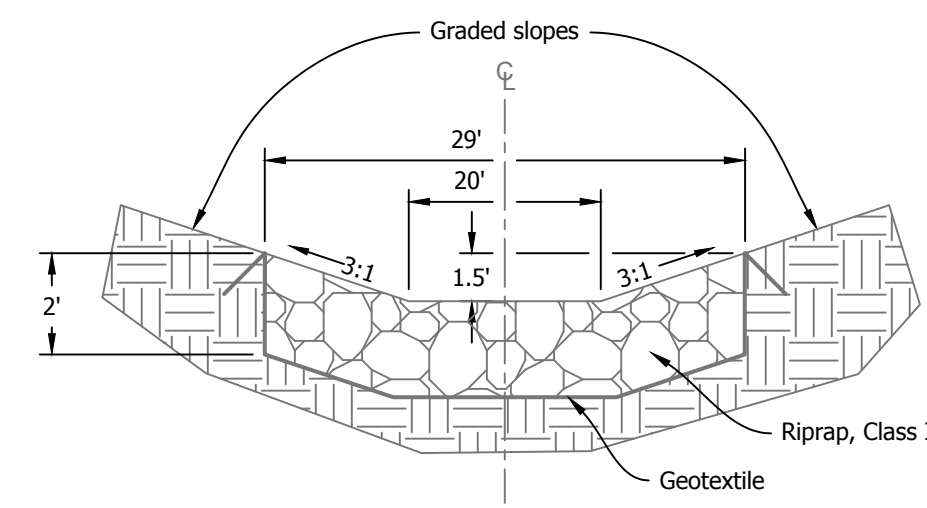
SHEET: 7 OF 8
 SITE: 345



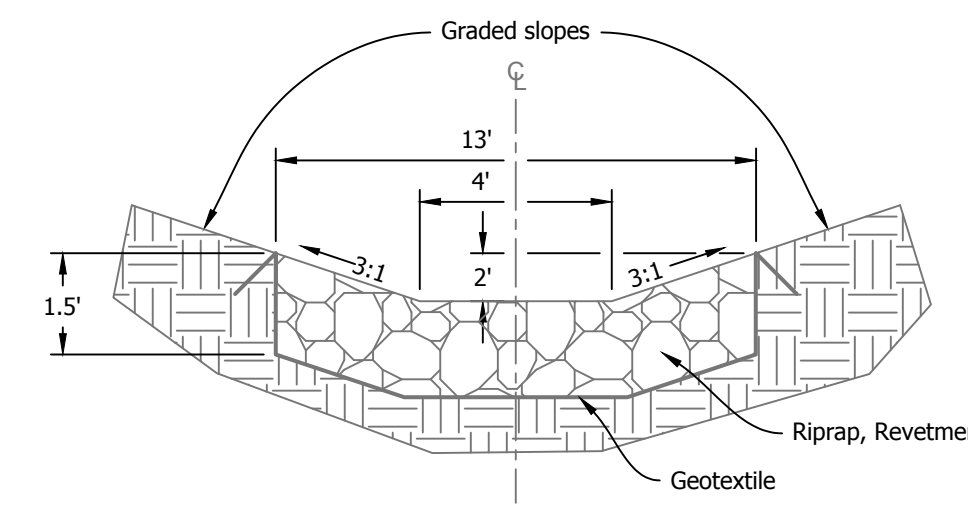
1 Ditch Lines A, B, & C, Type I
Not to Scale



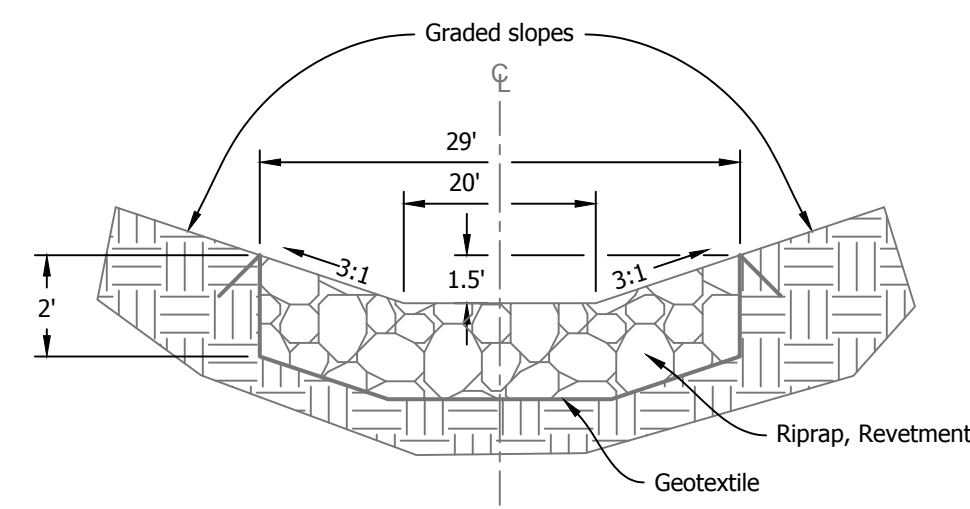
2 Ditch Lines D, E, G, & H Type II
Not to Scale



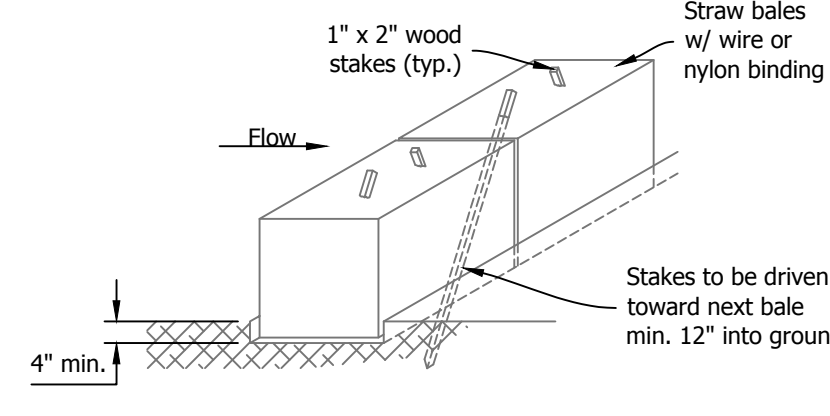
3 Ditch Line F, Type III
Not to Scale



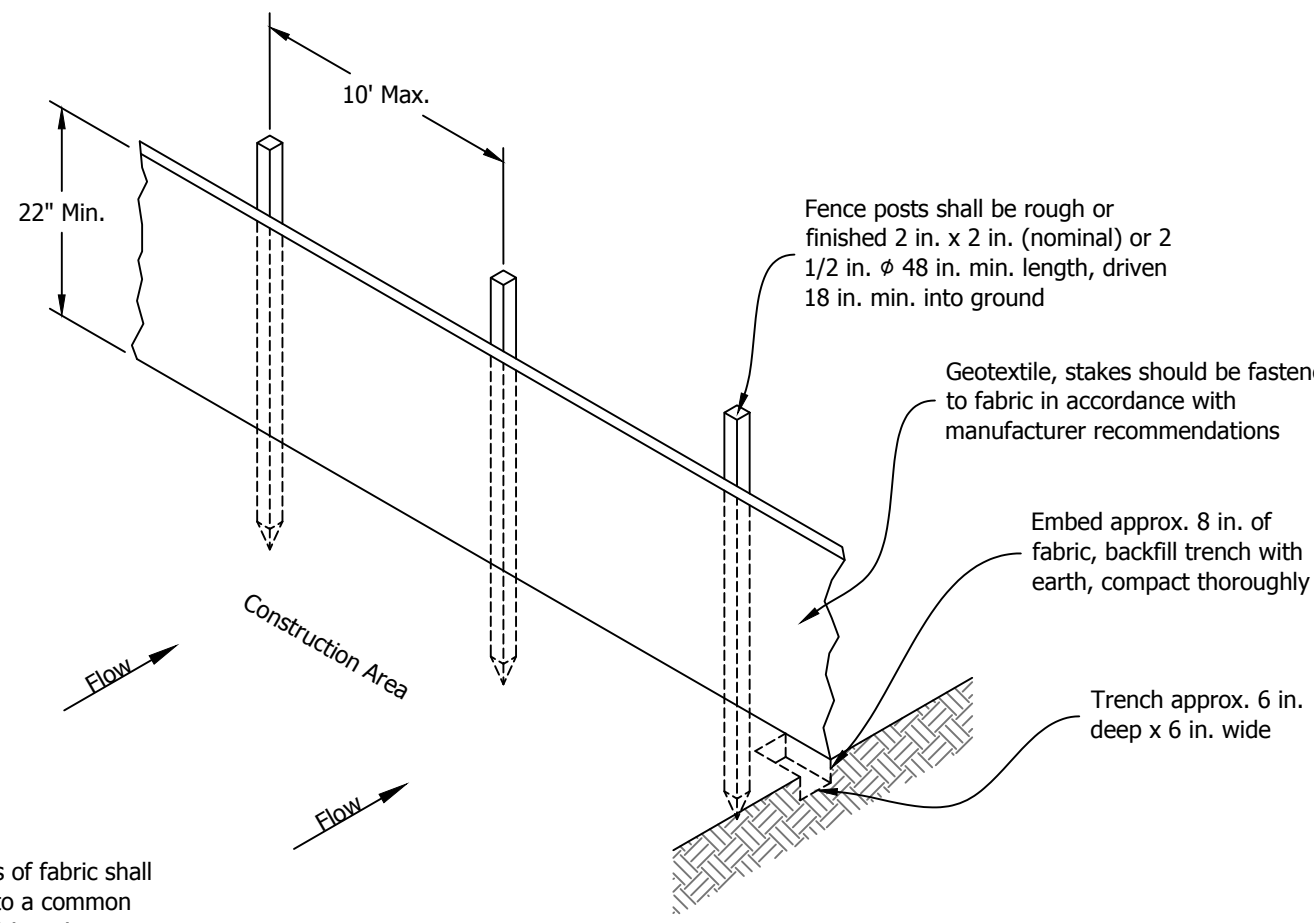
4 Ditch Line I, Type IV
Not to Scale



5 Ditch Lines J & K, Type V
Not to Scale

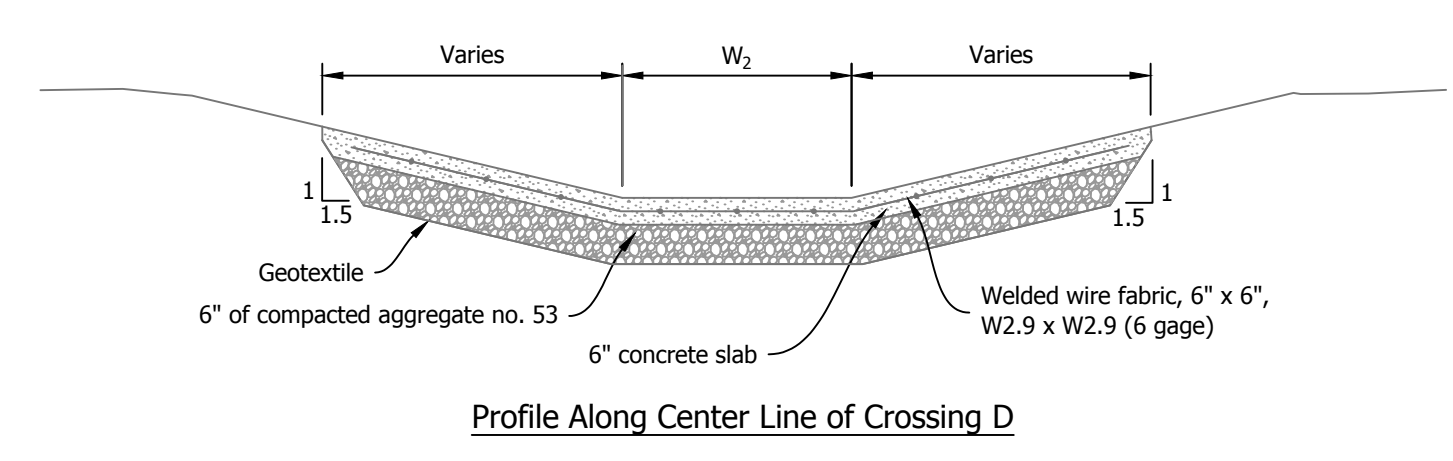
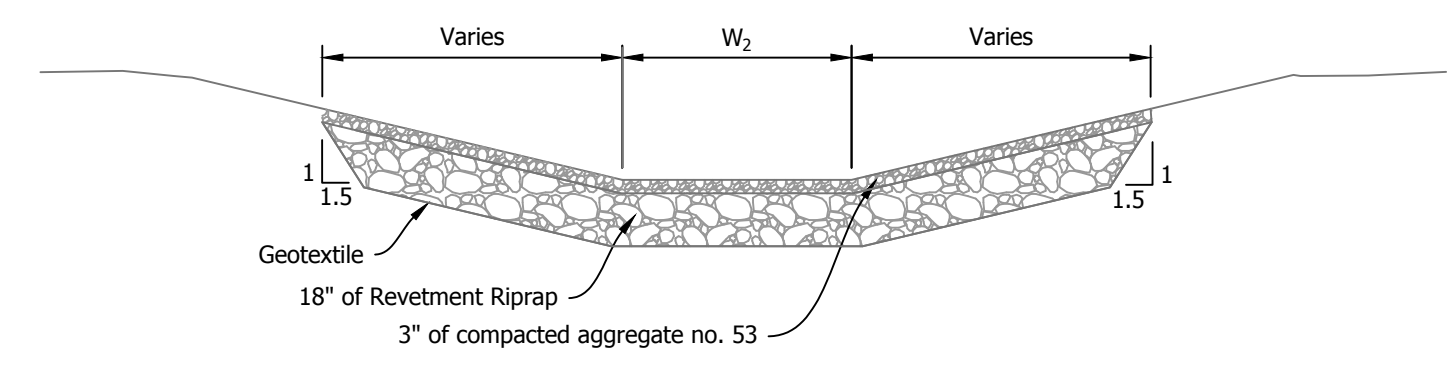
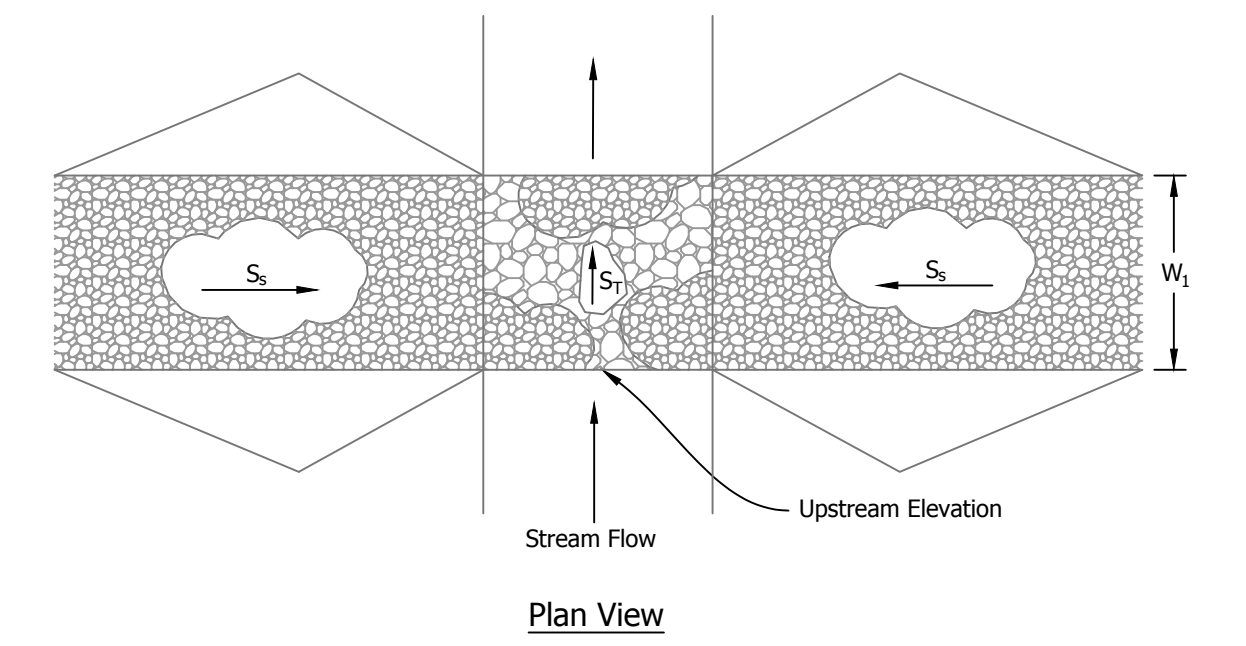


6 Temporary Check Dam, Straw Bale
Not to Scale



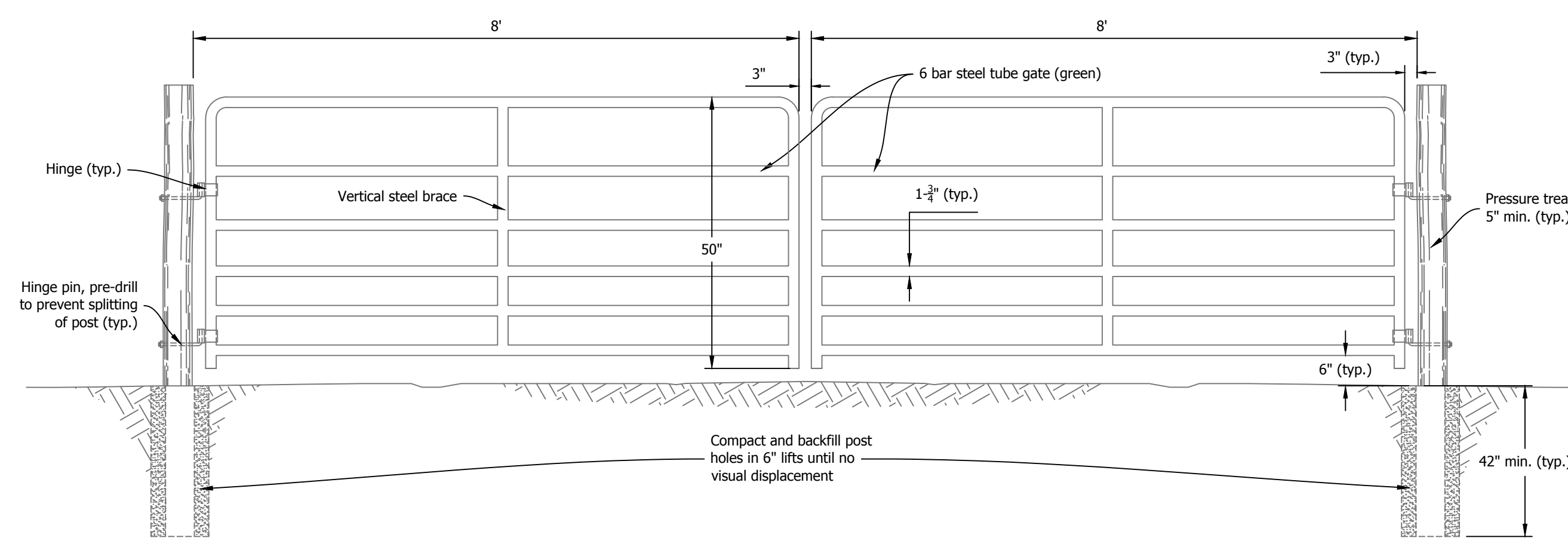
Note:
Ends of individual rolls of fabric shall be securely fastened to a common post and overlapped 3 in. min.

7 Silt Fence
Not to Scale



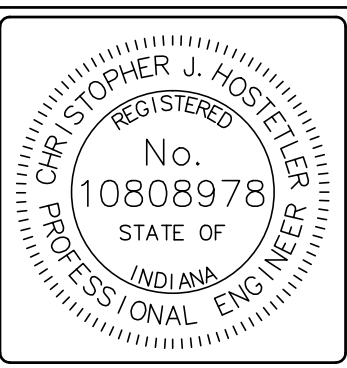
- NOTES
1. Compact surfacing material by equipment travel. The finished top surface of the rock in the bottom of the channel shall be no higher than the ditch bottom at the upstream edge of the crossing. It is expected that surfacing material will have to be replaced following high flow events.
 2. Blend approaches.
 3. Runoff shall be diverted from the approach.
 4. S_s and W_2 are perpendicular to flow, W_1 is parallel to flow.
 5. Concrete shall be 3,000 psi and the surface shall be roughened

8 Low Water Crossing
Not to Scale



9 Access Gate
Not to Scale

| Low Water Crossing Information | | | | | |
|--------------------------------|--------------|-------------------|-------------------|-------------------------|----------------|
| ID | Width, W_1 | Base Width, W_2 | Side Slope, S_s | Transverse Slope, S_t | Upstream Elev. |
| A | 12' | 10' | 5:1 | 0% | 489.0' |
| B | 12' | 12' | 10:1 | -1.57% | 490.4' |
| C | 12' | 10' | 5:1 | 0% | 489.0' |
| D | 14.2' | 20' | 5:1 | 2.00% | 488.2' |
| E | 12' | 15' | 10:1 | 0% | 487.0' |
| F | 12' | 10' | 5:1 | 0% | 487.0' |
| G | 12' | 10' | 5:1 | 0% | 487.0' |
| H | 10' | 4' | 15:1 | 0% | 489.2' |
| I | 12' | 12' | 5:1 | 0% | 485.0' |
| J | 12' | 12' | 5:1 | 0% | 485.0' |
| K | 12' | 20' | 5:1 | -0.14% | 486.0' |



RECOMMENDED FOR APPROVAL: *Christopher J. Hostetler* 7/18/19 DATE

DESIGNED BY: C.J.H.

DRAWN BY: C.J.H.

DATE MADE: 3/27/2019

DATE REVISED: 5/20/2019 4:18:51 PM

DETAILS

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

SCALE: AS NOTED

PROJECT: E008-304

SHEET: 8 OF 8

SITE: 345