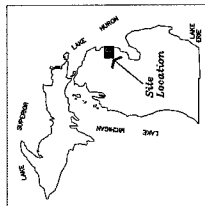


APPROVED

By WRD/DEQ at 8:36 am, May 21, 2017

CEDAR LAKE IMPROVEMENT BOARD WETLAND ENHANCEMENT BERM PROJECT

Cedar Lake, Greenbush, Michigan



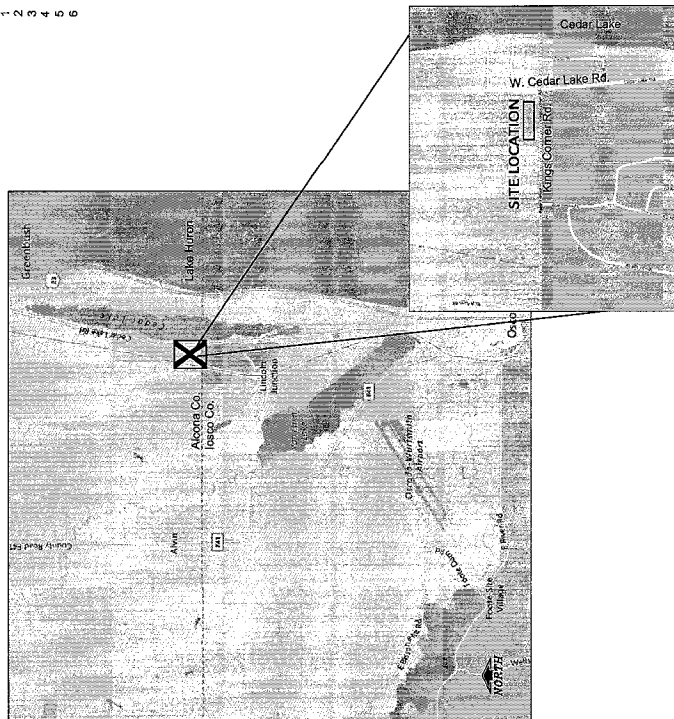
ALCONA COUNTY, MICHIGAN

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING
1500 W. 10th Street, Suite 101, Greenbush, Michigan 49738

CONSULTANT CONTACT
KIESER & ASSOCIATES, LLC
536 E. Mich. Ave. Ste 300
Kalamazoo, MI 49007
(269) 344-7117
Mr. Brian Boyer, P.E.

OWNER CONTACT
CEDAR LAKE IMPROVEMENT BOARD
P.O. Box 53
Greenbush, MI 49738
(810) 516-6686
Mr. Rex Vaughn, Chairman

PROJECT LOCATION



INDEX OF DRAWING SHEETS

1. Cover Sheet
2. Legend and Bid Notes
3. Existing Conditions Survey
4. Site Removal Plan
5. Site Grading and Restoration Plan
6. Site Details

NOTES:

1. The Contractor is responsible for contacting MISS DIG (1-800-482-7171) at least 3 working days before construction begins. The Contractor shall provide the MISS DIG ticket number upon request. Any utility conflicts must be presented to the Engineer in writing prior to commencement of work.
2. The Landowner is responsible for obtaining any Federal or State permits.
3. The Contractor is responsible for obtaining any Local permits.
4. The Contractor is responsible for knowing and following all appropriate safety standards which are required by the Michigan Occupational Safety and Health Act.
5. Hard hats must be worn by anyone on the site who may be exposed to falling objects or flying debris and anyone within the operating range of overhead construction equipment. This equipment includes, but is not limited to, backhoes, cranes, draglines, and front end loaders.
6. Any deviation from these construction drawings and specifications will be considered defective work and subject to correction for conformance at the Contractor's expense.
7. Contractor shall keep disturbance of all areas of construction to a minimum.
8. Locations and elevations of existing utilities are not exact. Contact Miss Dig at 1-800-482-7171, prior to beginning construction.
9. Existing utilities destroyed or disturbed by the Contractor's operations shall be repaired at the Contractor's expense.
10. Hand dig in all areas of existing utilities.
11. The contractor shall be required to prevent movement of soil off site. Additional silt fencing may be required beyond that shown. Any additional silt fencing shall be incidental to work.
12. All work shall be checked for accuracy to the plans by the Contractor prior to installation.



DATE
AUG 31, 2016

PROJECT TITLE
CEDAR LAKE IMPROVEMENT BOARD WETLAND ENHANCEMENT BERM PROJECT

CEDAR LAKE IMPROVEMENT BOARD
P.O. Box 53,
Greenbush,
Michigan



PREPARED FOR
KIESER & ASSOCIATES

DATE
AUG 16, 2016
SHEET TITLE
COVER SHEET

WRP006792 v1.0

KIESER & ASSOCIATES
1500 W. 10th Street, Suite 101
Greenbush, Michigan 49738
Phone: (269) 344-7117 Fax: (269) 344-7119
www.kieserandassociates.com

SHEET NUMBER
C 001

APPROVED

By WRD/DEQ at 8:36 am, May 21, 2017

LEGEND

- 613.62 --- EXISTING ELEVATION CONTOUR
- 613.62 SPOT ELEVATION
- ⊕ STORM SEWER MANHOLE
- STORM CULVERT
- 613.62 --- PROPOSED ELEVATION CONTOUR
- FLAGGED WETLAND BOUNDARY
- · - · - LIMITS OF WORK
- ▨ TEMPORARY ACCESS LANE
- ▧ UPLAND SOILS SOURCE FOR FILL
- ▩ RIPRAP STONE SPILLWAY (SHEET C-006)

SEED MIX LEGEND

- ▨ SHORT STATURE BIOSWALE SEED MIX (WP7)
(BELOW ELEV. 611.0)
- ▨ SHORT GRASS WITH DIVERSE HEIGHT
WILDFLOWERS PRAIRIE SEED MIX (MP4)
(ABOVE ELEV. 611.0)

SEED SUPPLIER:
MICHAEL VAN LAEKEN
DIRECTOR OF RESTORATION SERVICES
HEARTLAND RESTORATION SERVICES, INC
14921 HAND ROAD
FORT WAYNE, IN 46818
P: 260 489-8511 F: 260 489-8607
www.earthsourceinc.net

MINIMUM EROSION CONTROL PRODUCTS

1. DSTS DEGRADABLE SINGLE NET STRAW BLANKETS (100% BIODEGRADABLE)
2. PROTECTIVE MAT WITH GEOTEXTILE FABRIC
3. ECOLOPENCE 24 SILT FENCE

EROSION CONTROLS SUPPLIER:

MARK CAVANAUGH
PRICE AND COMPANY, INC.
425 36TH STREET SW
WYOMING, MI 49546
P: (616) 530-4230 F: (616) 530-2317
www.hinescompanies.com

BID MATERIAL QUANTITIES

1. EXISTING CONDITIONS SURVEY CONDUCTED BY NORTHEAST LAND SURVEY, OSCODA, MI (989)-739-0771.

BID MATERIAL QUANTITIES

SCHEDULE OF VALUES										
WORK ITEM #	DESCRIPTION	QUANTITY	UNIT							
1	Mobilization & general conditions	1	lsbm							
2	Incidental clearing and grubbing	0.5	acres							
3	Strip/stockpile existing topsoil	178	cyd							
4	Excavate upland soils	1,067	cyd							
5	Place upland fill	1,067	cyd							
6	3'-6" Dia. Stone riprap & geotextile	6	7	Native seed mixes	0.5	acres	8	DST75 erosion control blanket	0.22	acres
7	Native seed mixes	0.5	acres							
8	DST75 erosion control blanket	0.22	acres							

BID DESCRIPTIONS

WORK ITEM DESCRIPTIONS AND NOTES

- 1 Mobilization & general conditions. Provide all project start-up and mobilization, temporary access, construction engineering, staking and layout as required to install improvements shown on the drawings.
- 2 Incidental clearing and grubbing. Clear and grub all areas as needed to install improvements indicated on this set of drawings. Remove all cleared debris to the edge of the work limits. All disturbed areas shall be dressed and seeded similar to the work items.
- 3 Strip/stockpile existing topsoil. Strip existing topsoil to the limits shown. Stockpile and reuse. Place upon final finish grade in accordance with elevations shown on the drawings to a 4" depth.
- 4 Excavate upland soils. Excavate upland soils from designated location indicated on the drawings. Upland excavation area shall be regraded upon completion for restoration seeding.
- 5 Place upland fill. Place upland fill soils to create new berm, 400-ft in total length. All fill shall be placed as engineered fill and compacted as outlined in two foot lifts. Grades shall allow for topsoil and other surface finishes as shown.
- 6 3'-6" Dia. stone riprap & geotextile. Install riprap (3'-6" dia.) berm spillway as indicated on the plans. All stone, installation & geotextile shall be included in this item.
- 7 Native Seed Mixes. Place native seed mixes (WP7 and MP4) as indicated on the drawings from the approved supplier identified.
- 8 DST75 Erosion Control Blanket. Place DST75 erosion control blanket on native seed areas indicated on the drawings from the approved supplier. All disturbed berm location areas shall receive erosion control blankets. Upland areas will not require blankets.



01-Kings Court or Old-Greenbush

DATE
AUG 31, 2016

PROJECT TITLE
CEDAR LAKE
LAKE
IMPROVEMENTS
BOARD
WETLAND
ENHANCEMENT
BERM
PROJECT

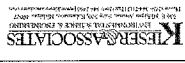
CEDAR LAKE
IMPROVEMENT
BOARD
P.O. Box 50,
Greenbush,
Michigan



PERMIT NUMBER
AUG 16
ISSUED FOR

SHEET TITLE
BID NOTES

WRP006792 v1.0



SHEET NUMBER
C 001

01-Kings Corner Rd-Greenbush



DATE
AUG 31, 2016

PROJECT TITLE
CEDAR LAKE
IMPROVEMENT
BOARD
WETLAND
ENHANCEMENT
BERM
PROJECT

CEDAR LAKE
IMPROVEMENT
BOARD
P.O. Box 53,
Greenbush,
Michigan



PERMIT REVIEW
ISSUED FOR
AUG 16
DATE

SHEET TITLE
EXISTING
CONDITIONS
SURVEY

WRP006792 v1.0

KESPER ASSOCIATES
1356 Michigan Ave. Suite 200
Greenbush, Michigan 48839
Phone: (517) 731-1200 Fax: (517) 731-1201
www.kesperassociates.com

SHEET NUMBER
C 003

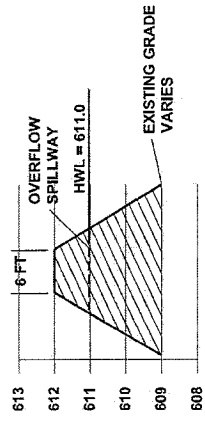
APPROVED
By WRD/DEQ at 8:37 am, May 21, 2017



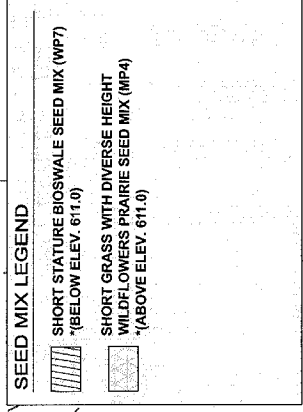
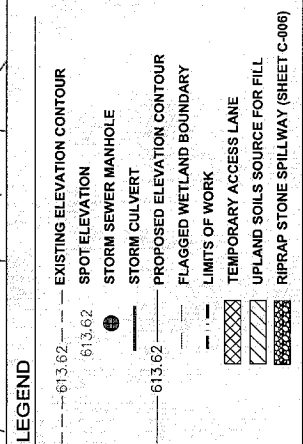
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APPROVED
By WRD/DEQ at 8:37 am, May 21, 2017

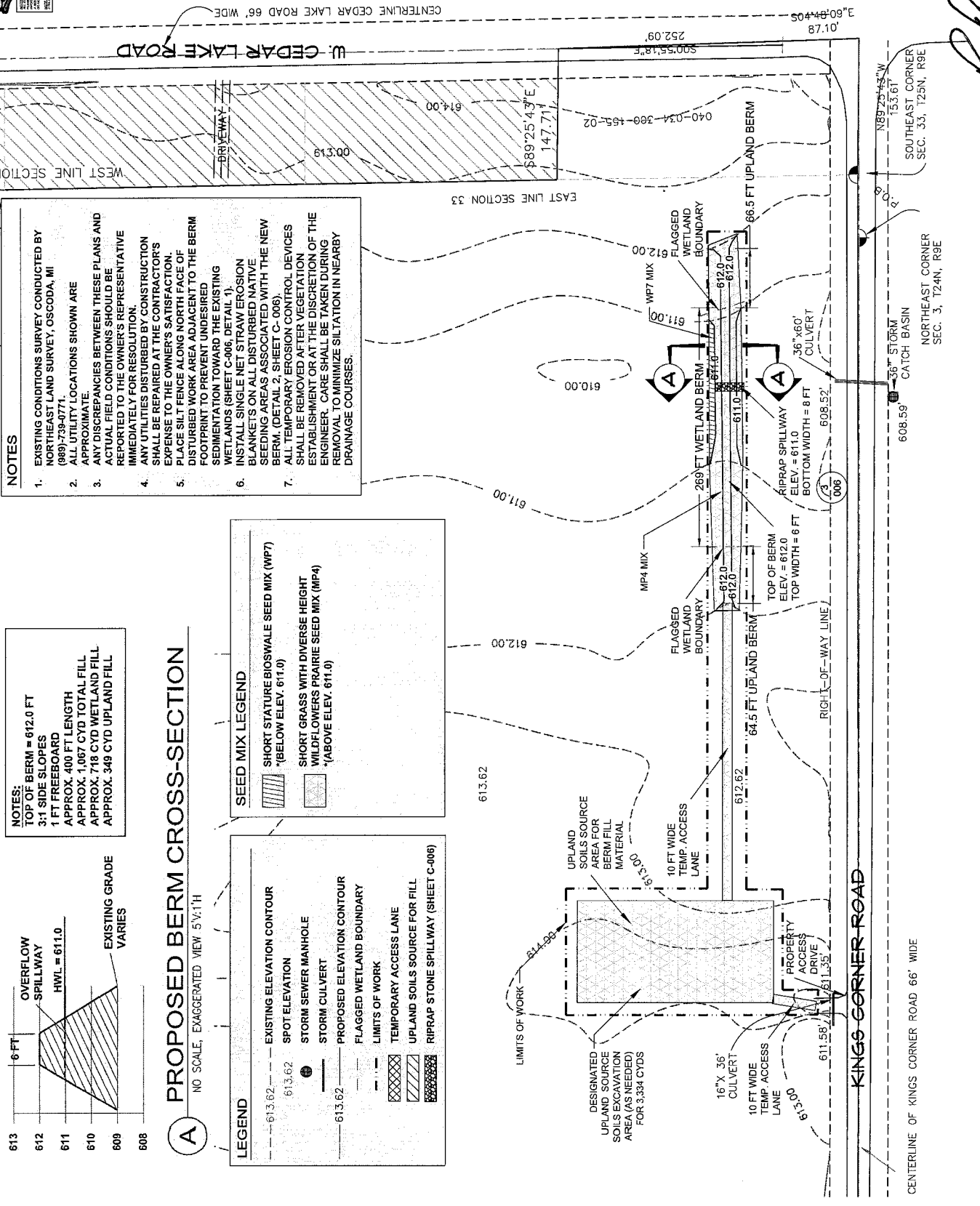
NOTES:
TOP OF BERM = 612.0 FT
3:1 SIDE SLOPES
1 FT FREEBOARD
APPROX. 400 FT LENGTH
APPROX. 1,067 CYD TOTAL FILL
APPROX. 718 CYD WETLAND FILL
APPROX. 349 CYD UPLAND FILL



A PROPOSED BERM CROSS-SECTION
NO. SCALE, EXAGGERATED VIEW 5"V:1" H



- NOTES**
- EXISTING CONDITIONS SURVEY CONDUCTED BY NORTHEAST LAND SURVEY, OSCODA, MI (989)739-0771.
 - ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE.
 - ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHOULD BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY FOR RESOLUTION.
 - ANY UTILITIES DISTURBED BY CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE OWNER'S SATISFACTION. PLACE SILT FENCE ALONG NORTH FACE OF DISTURBED WORK AREA ADJACENT TO THE BERM FOOTPRINT TO PREVENT UNDESIRABLE SEDIMENTATION TOWARD THE EXISTING WETLANDS (SHEET C-006, DETAIL 1).
 - INSTALL SINGLE NET STRAW EROSION BLANKETS ON ALL DISTURBED NATIVE SEEDING AREAS ASSOCIATED WITH THE NEW BERM. (DETAIL 2, SHEET C-008).
 - ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AFTER VEGETATION ESTABLISHMENT OR AT THE DISCRETION OF THE ENGINEER. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.



[Handwritten signature]



DATE
AUG 31, 2016

PROJECT TITLE
CEDAR LAKE
IMPROVEMENT
BOARD
WETLAND
ENHANCEMENT
BERM
PROJECT

CEDAR LAKE
IMPROVEMENT
BOARD
P.O. Box 53,
Greenbush,
Michigan



DESIGN NUMBER
WRP006792

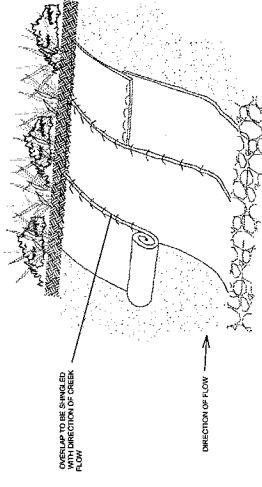
DATE
AUG 16, 2017

SHEET TITLE
SITE
IMPROVEMENT
DETAILS

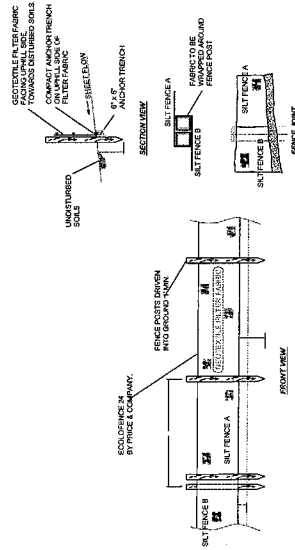
KESPER ASSOCIATES
PROFESSIONAL SERVICE CORPORATION
11111 Michigan Avenue, Suite 100
Livonia, Michigan 48150
TEL: 734.424.1111 FAX: 734.424.1112
WWW.KESPERASSOCIATES.COM

SHEET NUMBER
C 006

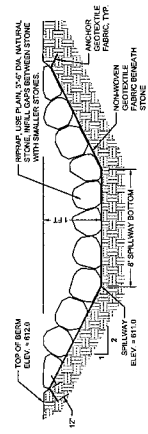
- NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND ANCHORING THE BLANKET IN A 6" DEEP BY 6" TRENCH AFTER FINISHING.
 2. BEGIN AT THE TOP OF THE SLOPE BY OVERLAP THE BLANKET IN A 6" DEEP BY 6" TRENCH AFTER FINISHING.
 3. ROLL THE BLANKETS DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
 4. WHEN INSTALLING BLANKETS, THEY MUST BE OVERLAPPED BY APPROXIMATELY 12" OVERLAP.
 5. WHEN BLANKETS MUST BE SPUN DOWN THE SLOPE, THEY MUST BE SPUN DOWN THE SLOPE WITH APPROXIMATELY 12" OVERLAP.
 6. BLANKETS SHALL BE SPUN IN ROWS NOT MORE THAN 2' O.C. WITH A MAXIMUM OF 4" SPACING BETWEEN ROWS.
 7. ALL SPILLWAYS SHALL BE TO BE TUCKED UP AND BELOW EDGE OF TIES.



2 EROSION CONTROL BLANKET DETAIL
NOT TO SCALE



1 SOIL EROSION CONTROL GEOTEXTILE SILT FENCE
NOT TO SCALE



3 BERM SPILLWAY DETAIL
NOT TO SCALE

APPROVED
By WRD/DEQ at 8:37 am, May 21, 2017