

City of Kimball, MN Stormwater Retrofit Phases I & II Operation & Maintenance Plan



Prepared for:
Clearwater River Watershed District



75 Elm Street East,
Box 481
Annandale, MN 55302



Responsive partner.
Exceptional outcomes.

Prepared by:

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1800 Pioneer Creek Center
Maple Plain, MN 55359
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1.0 Project Purpose & Background

The Kimball Phase I & Phase II Stormwater Retrofit projects were implemented to reduce nutrient and sediment load from urban sources in the upper Clearwater River Watershed District. Figure 1.1 shows the areas of the city that now route to stormwater treatment as the result of this project as well as BMP locations.

The City of Kimball, Minnesota and surrounding agricultural area drains, mostly untreated, into Willow Creek, a trout stream which empties into the Clearwater River Chain of Lakes. Multiple Best Management Practices (BMPs) were constructed to treat stormwater, recharge shallow groundwater, and more closely mimic the areas natural hydrology. The improvements are designed to reduce temperature in Willow Creek and reduce nutrient loadings to downstream lakes.

The District was awarded two grants by the Board of Water and Soil Resources through the Clean Water Legacy Funds. These funds, along with matching funds by the City of Kimball and the Clearwater River Watershed District (CRWD) allowed design and construction of the project in two phases:

- ▲ Phase I located on the east side of Highway 15 on the south edge of the City of Kimball.
- ▲ Phase II work is mostly on the west side of Highway 15 on the south edge of the City of Kimball and included some work to improve treatment efficiency of Phase I by reducing drainage area to that project.

The completed phases targeted and achieved treating runoff from the 1.25 inch precipitation event- also known as the water quality event. Total phosphorus (TP) removal efficiencies afforded by the BMPs range from 50% for bio-filtration areas to 90% for stormwater capture & infiltration/reuse project elements. In addition to sediment and phosphorus load reductions, temperatures in Willow Creek should also be improved for trout habitat given the focus on infiltration. The estimated improvements do not take into account infiltration and evapotranspiration in the downstream wetlands riparian to Willow Creek.

2.0 Project Elements

The elements of each phase of the project and their purpose are listed below. Each element corresponds to a location on the site map.

Phase I: The project, completed in 2009, includes:

1. A pretreatment raingarden west of the sand volleyball court/ hockey rink. The raingarden contains two cells for sediment capture, filtration and infiltration.
2. A Large capture / infiltration / re-use basin east of the rink. This basin captures a large portion of the runoff volume from the drainage area north of the basin, east of Highway 15. Some of the captured water infiltrates, recharging stormwater to reduce temperature and improves quality of discharge to nearby Willow Creek (a trout stream). The captured water is also available to irrigate the nearby baseball field which reduces runoff volumes and improves water quality downstream. A pump & filters were installed so the captured stormwater can be used for irrigation.
3. A stormwater re-use area where the captured stormwater is used to irrigate a baseball field that was previously irrigated solely by groundwater treated to drinking water standards by the City of Kimball.

Phase II: The project, completed in 2015, includes the following elements:

1. Stormwater pond with pre-treatment cell and filtration berm outlet on east side of the Hendricks's Sand and Gravel parcel.
2. Vegetated swale to provide emergency overflow for the basin and additional treatment.
3. Wetland restoration with low flow treatment filter.
4. Swale to route & pretreat stormwater to vegetated area and then to wetland and away from class 5 parking lot which exported significant sediment to a ditch with direct connection to Willow Creek.
5. A SAFL Baffle was installed upstream of the Phase I rain garden to capture sediment and assist in establishment of native plantings. This will capture additional sediment and reduce maintenance costs and impacts of sediment on native plants.
6. Stabilize Magnus Johnson Street Grit Chamber outlet to Willow Creek.
7. Two upsized grit chamber systems on the existing stormwater infrastructure to provide pretreatment for runoff from city streets.
8. A stormwater bypass to draw stormwater from east of Highway 15 to the treatment basins on the west. This project element improves function of Phase I by reducing the treatment volumes closer to the 1.25 inch event, and allows for further treatment of water east of Highway 15.
9. The irrigation system in Phase I was optimized to improve the efficiency of water reuse- reducing discharge downstream.
10. Constructed sediment capture area north of Highway 55 east of the Implement Yard to capture sediment from the nearby equipment lot prior to discharge into Willow Creek.

The BMPs from both phases are integrated to work in several treatment trains to reduce nutrient and sediment load to downstream wetlands and eventually to Willow Creek and Lake Betsy. The treatment trains are described below:

Phase I- Kimball Park Treatment Train

This treatment train captures water from the 9.4 acre drainage area west of Highway 15 and south of Hazel Avenue. Flow is routed through a swale, into the SAFL BAFFLE, then to the 2-cell raingarden prior to discharge to the stormwater basin on the east side of the hockey rink. Some stormwater infiltrates, the remainder is used to irrigate an adjacent ball field. An emergency overflow rock swale is located on the east side of the basin.

Phase II- Hendricks's West Treatment Train

This treatment train captures water from the 25.2 acre drainage area south of Highway 55 and on the western side of the school property. Another drainage area enters from the north, but due to significant wetland storage, this area does not discharge in the design event. Flow is routed through a swale, into low flow channel with filtration system. Larger flows are stored in the created wetland area which was formerly a field with debris. This flows into another vegetated swale before discharging into the wetlands upstream of the creek to filter/infiltrate prior to discharge to Willow Creek.

Phase II- Hendricks's East Treatment Train

This treatment train piggy-backs on street and storm sewer work implemented by the City of Kimball. One pipe was upsized and extended to bring water from the drainage area east of Highway 15 to constructed BMPs. The upsized pipe brings water to a grit chamber system (which was upsized with grand funds) prior to discharging into a double cell stormwater basin with a filter outlet before discharging into the wetlands upstream of the creek to filter/infiltrate prior to discharge to Willow Creek. This water would have discharged directly to the creek untreated pre project.

Phase II- Localized Sediment Reduction BMPs

Because the City of Kimball is built out, the opportunities for extensive construction of BMPs was not available for every watershed. So some BMPs were located to provide additional sediment removal:

- ▲ A grit chamber outlet to a stream at the downstream edge of Magnus Johnson Street was restored and stabilized. This reduces sediment transport to the wetland downstream which empties into Willow Creek.
- ▲ A sediment pre-treatment cell was installed on the north side of Highway 55 to capture runoff from a Class 5 parking lot which was exporting significant sediment downstream.
- ▲ An additional grit chamber was upsized at Cherry Street.

All told, the estimated load reductions based on design volumes for the 1.25 inch event and general BMP efficiencies for infiltration/ filtration, sedimentation are conservatively estimated at 50 to 80%. Load reductions from infiltration / evapotranspiration of treated stormwater in repairing wetlands are not accounted for so estimated load reductions are conservative.

As-builts for the Phase I are located in Appendix A. As-builts for Phase II are Appendix B. Blank inspection forms are Appendix C. Keep completed inspection and maintenance records in Appendix D (currently blank).

3.0 Project Partners, Roles & Responsibilities

The District's project partners in this project are the City of Kimball, the DNR and Stearns County.

Project Contacts:

Clearwater River Watershed District:

Role: Project owner, project coordinator, project inspector, conduct project maintenance as required

Cole Loewen
District Administrator
Clearwater River Watershed District
320.274.3935

Wenck Associates, Inc:

Role: Project engineer, project inspector

Rebecca Kluckhohn, P.E.
Wenck Associates, Inc.
763.479.4224

City of Kimball:

Role: Conducts on-going sediment removal in grit chambers & SAFL Baffle. Maintains underground stormwater conveyance system. Monitor and maintains phase I stormwater basin and pretreatment cells. Operate irrigation system for reuse of captured stormwater.

Tammy Konz- Mayor
Ed Borman- Maintenance Staff/ Irrigation System Operation
320.398.2725

Board of Water and Soil Resources:

Role: Representative of grand funding agency

Jason Weirnerman
Board Conservationist
1601 Minnesota Drive
Brainerd, MN 56401
218.203.4477

Traut Wells:

Role: Contractor available for irrigation system inspection & maintenance

141 28th Ave S.
Waite Park, MN 56387
Ph: 320-251-5090
Email: sprink@trautwells.com

Prairie Restorations, Inc.:

Role: Contractor available for native vegetation inspection & maintenance

31646 128th Street,
Princeton, MN 55371

Ph: 763-389-4342

Email: info@prairieresto.com

Geislinger and Sons:

Role: Contractor available for maintenance, sediment removal for SAFL Baffle and Grit Chambers

511 Central Ave S, Watkins, MN 55389

(320) 764-2006

4.0 Inspection & Maintenance

This section documents inspection and maintenance requirements for the various project elements.

4.1 GENERAL CONDITION

General inspection elements include a site visit and photographs of the entire site, the inlets, outlets, any erosion areas and native vegetation. Note the general condition of the BMP including standing water and overall functionality. Note the most recent precipitation and the general weather conditions on site. The inspector should complete the blank worksheets in Appendix C for each project element. Document, on the same sheet, the maintenance performed (if any). Maintain inspection logs and pay requests for work completed in the binder (Appendix D). Inspections will be conducted quarterly to annually and maintenance will be prioritized in the context of all District projects. The District prepares an annual inspection report. Results of the inspections will also be documented here.

4.2 NATIVE VEGETATION

The basins are intended to capture sediment and sustain aesthetically appealing native vegetation at high density. Vegetation in park settings should be maintained at a higher level. It requires regular inspection, sediment removal and vegetative maintenance by a professional native landscaper. The current maintenance contract is with Prairie Restorations, Inc.

Native areas should be inspected and maintained to ensure they are maintained free of noxious weeds and trash and bare spots.

Mowed borders to the native vegetation create a fresh edge to the native area and assists with aesthetics. City of Kimball staff will conduct mowing as needed. Areas in park settings may be maintained at a higher level to encourage more flowering plants.

Maintenance can include spraying for noxious weeds, reseeding bare spots, and prescribed burns. Prescribed burns would be conducted by a contractor with native vegetation maintenance expertise. Contracts should require them to obtain any necessary permits required for burning from local and state officials.

4.3 SEDIMENT ACCUMULATION

The basins are designed to accumulate sediment, and will, from time to time require removal of accumulated sediment. Fore bays and pre-treatment areas fill up first. Maintenance on fore bays will be more frequent than maintenance on main basins. Regular maintenance of fore bays will reduce maintenance costs for the main basins.

Basins should be checked for accumulation of sediment per the schedule attached. Care should be taken by contractors to avoid compaction of the subgrade as many of the ponds have an infiltration component.

To quantify the accumulated sediment, survey the bottom elevations of the pond in transects and compare measured bottom elevations to as-built plans. This will provide a quantity of sediment removed. Depending on the quantity of sediments, testing and permits may be required for disposal.

Contractors performing maintenance should be provided a drawing of the site with limits of work clearly defined so they do not unnecessarily damage native vegetation areas or compact infiltration areas. While the phase I stormwater reuse / infiltration basin is the responsibility of the City of Kimball, it is expected the City and the CRWD will work together to ensure the basin and its pretreatment raingarden will be maintained appropriately.

4.4 BASIN OUTLETS

Pond outlets should be inspected for erosion and condition of rip rap near the structure. Bare geotextile or bare soil should be covered with riprap as specified in original plans. Check to see if outlets are free-flowing, are clogged or if debris has accumulated.

4.5 BASIN INLETS

Pond inlets should also be inspected for erosion and clogging. Check to see if inlets are free-flowing, are clogged or if debris has accumulated.

4.6 EROSION

Inspect the BMP for areas of bare soil or erosion and note them. Identify the source of the erosion and photograph it. With erosion, it may be necessary to simply reseed the area, or additional rip rap, geotextile, or regrading may be required.

4.7 FLOATABLES & DEBRIS

Floatables consist of trash, downed branches and other debris that compromises the aesthetics or function of the BMP. These should be removed by the inspector where possible, or arrange for city staff or a contractor to perform the work.

4.8 INSPECTION SCHEDULE

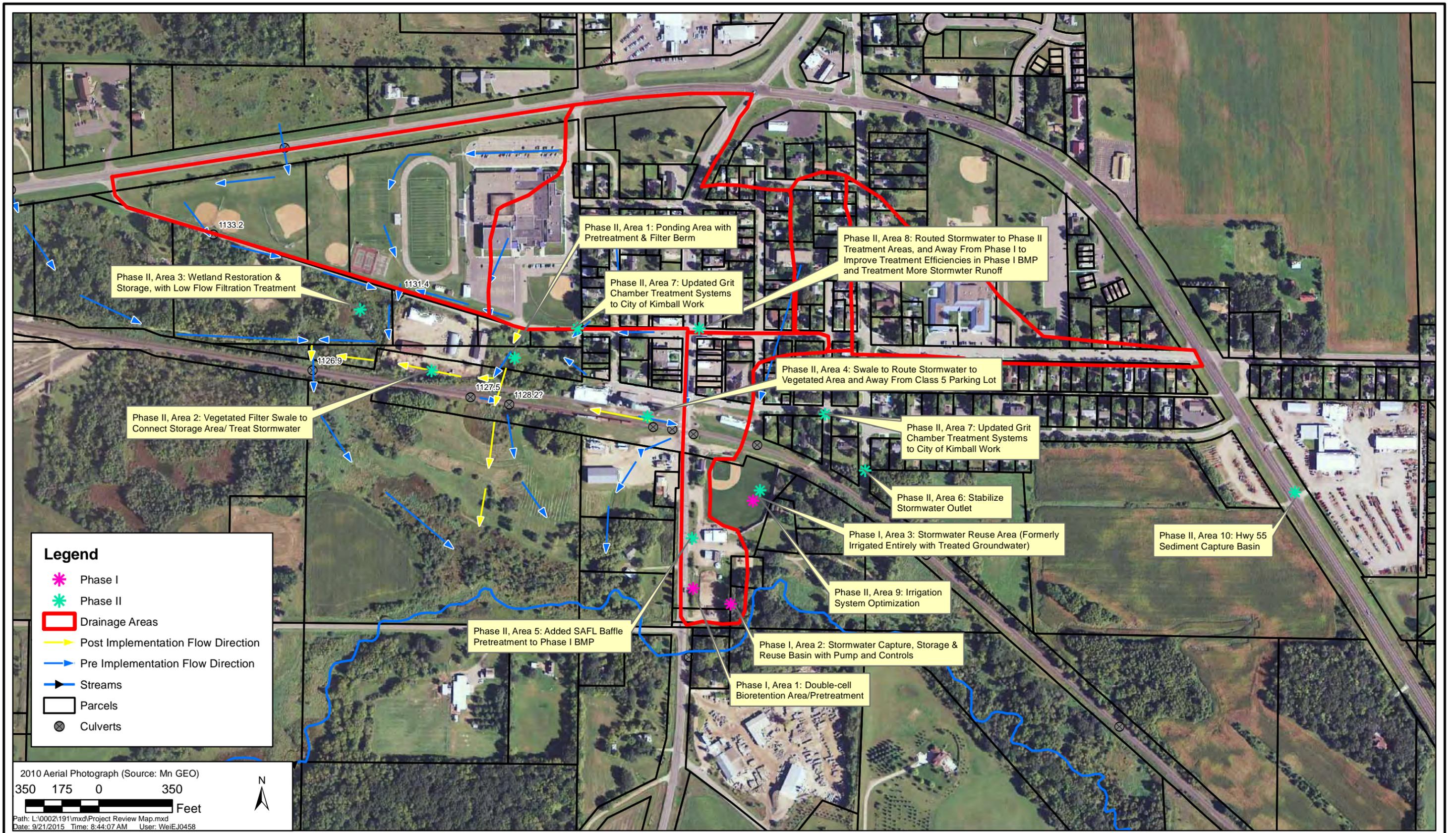
The results of the inspection will dictate maintenance requirements. After the first several rounds of inspection, it may be possible to predict frequency of maintenance. During the beginning of the project, BMPs should be inspected following large rain events in addition to the schedule in table 4-1 below:

Table 4-1: Inspection Schedule

Phase	Letter	Project Element	Sediment Accumulation	Native Vegetation	Outlet	Floatables
I		Phase I Raingarden pretreatment	Quarterly	Spring & Fall	Annually	Annually
I		Phase I Re-use / infiltration Basin	Annually	Spring & Fall	Annually	Annually
I		Phase I Irrigation Pump	Annually	NA	NA	NA
I		Phase I Irrigation Line	Annually	NA	NA	NA
I		Phase I Irrigation Mechanical	Annually	NA	NA	NA
II		Hendricks Pre-treatment cell west	Monthly to quarterly	Spring & Fall	Annually	Quarterly
II		Hendricks Basin west & filters	Annually	Spring & Fall	Annually	Annually
II		Hendricks Pre-treatment cell east	Quarterly	Spring & Fall	Annually	Annually
II		Hendricks Basin east & filters	Annually	Spring & Fall	Annually	Annually
II		Highway 55 Sediment Capture Basin	Annually	Spring & Fall	Annually	Annually
II		SAFLE Baffle & Grit Chambers	Monthly to quarterly	NA	Annually	Annually

Figure

Stormwater Treatment Areas

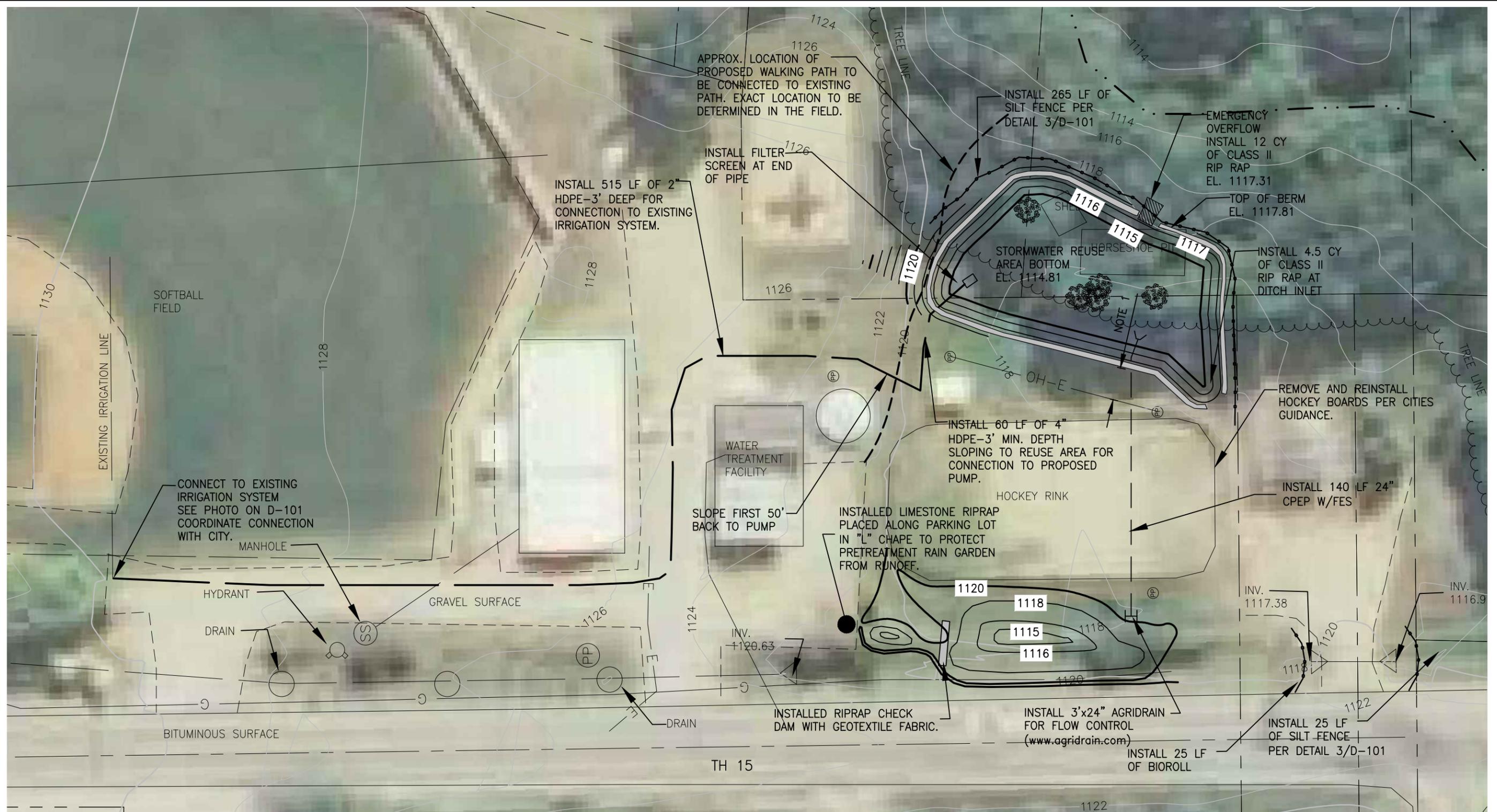


CLEARWATER RIVER WATERSHED DISTRICT
 Kimball Stormwater Phase I & II Project Review



AUG 2015
 Figure 1.1

Phase I As-Built Drawings



- NOTES:
1. MAINTAIN A MINIMUM OF 15' CLEARANCE BETWEEN OVERHEAD ELECTRICAL AND POND GRADING.
 2. FIELD VERIFY ALL UTILITY LOCATION PRIOR TO CONSTRUCTION.

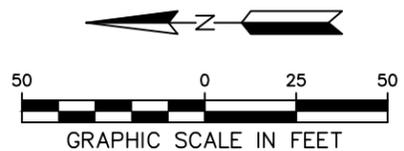
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1	REVISED POND	JVB	HL	8/19/2010

Wenck
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 Web Site: www.wenck.com

DWN BY JVB	CHK'D HL	APP'D NCW
DWG DATE AUG. 2010		
SCALE		

PROJECT KIMBALL RIVER STORMWATER RIVER REUSE PROJECT
CLIENT CLEARWATER RIVER WATERSHED DISTRICT

SHEET TITLE GRADING AND EROSION CONTROL PLAN		
PROJECT NO. 0002-143	SHEET NO. C-102	REV NO. 2



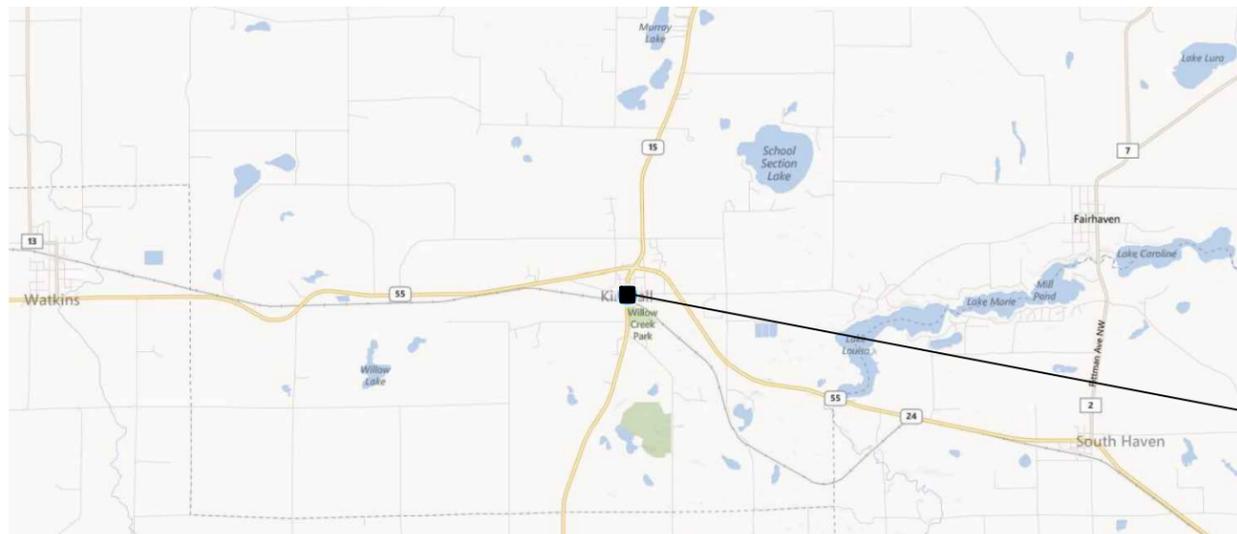
Phase II As-Built Drawings

CONTRACT DRAWINGS

KIMBALL PHASE II STORMWATER IMPROVEMENTS

CLEARWATER RIVER WATERSHED DISTRICT

OCTOBER 2013



PROJECT LOCATION MAP



ENLARGED PROJECT LOCATION MAP

PROJECT LOCATION

PROJECT LOCATION

23
THIS PLAN SET CONTAINS 49 SHEETS.

INDEX OF SHEETS

G-101	TITLE SHEET
G-102	LOCATION PLAN
C-101	EXISTING CONDITIONS & REMOVAL PLAN - WESTERN AREAS
C-102	EXISTING CONDITIONS & REMOVAL PLAN - DOWNTOWN KIMBALL
C-201	SWPPP PLAN
C-202	EROSION CONTROL PLAN - WESTERN AREAS
C-203	EROSION CONTROL PLAN - DOWNTOWN KIMBALL
C-301	GRADING PLAN - HENDRICKS EAST
C-302	GRADING PLAN - HENDRICKS WEST ALT. #1
C-303	GRADING PLAN - CP RAIL ACCESS ROAD
C-304	GRADING PLAN - RAIN GARDENS (NOT CONSTRUCTED)
C-501	STORM SEWER PLAN & PROFILE - HAZEL AVE
C-502	STORM SEWER PLAN & PROFILE - HAZEL AVE STORM LEADS
C-503	STORM SEWER PLAN & PROFILE - CP RAIL & WIN-GO PROPERTY
C-601	STREET PLAN - HAZEL AVE
C-801	DETAILS
C-802	DETAILS
C-803	DETAILS
C-804	DETAILS
CO-1	CHANGE ORDER 1 - WILLOW CREEK PARK STORMWATER IMPROVEMENTS SAFL Baffle DETAIL
CO-2	CHANGE ORDER 2 - MAGNUS JOHNSON OUTLET STABILIZATION
CO-3	IMPLEMENT YARD GRADING

INDEX OF CHANGE ORDERS

C.O. #1	WILLOW CREEK PARK STORMWATER IMPROVEMENTS	CO-1
C.O. #2	MAGNUS JOHNSON OUTLET STABILIZATION	CO-2
C.O. #3	IMPLEMENT YARD GRADING	CO-3
C.O. #4	MISCELLANEOUS RESTORATION WORK	C-301, CO-1

WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
GOPHER STATE ONE CALL
TWIN CITY AREA: 651-454-0002
TOLL FREE 1-800-252-1166



RECORD PLANS	
CONTRACTOR: <u>KUECHLE</u>	
DATE: <u>08/26/15</u>	
RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY <u>NPW</u>	

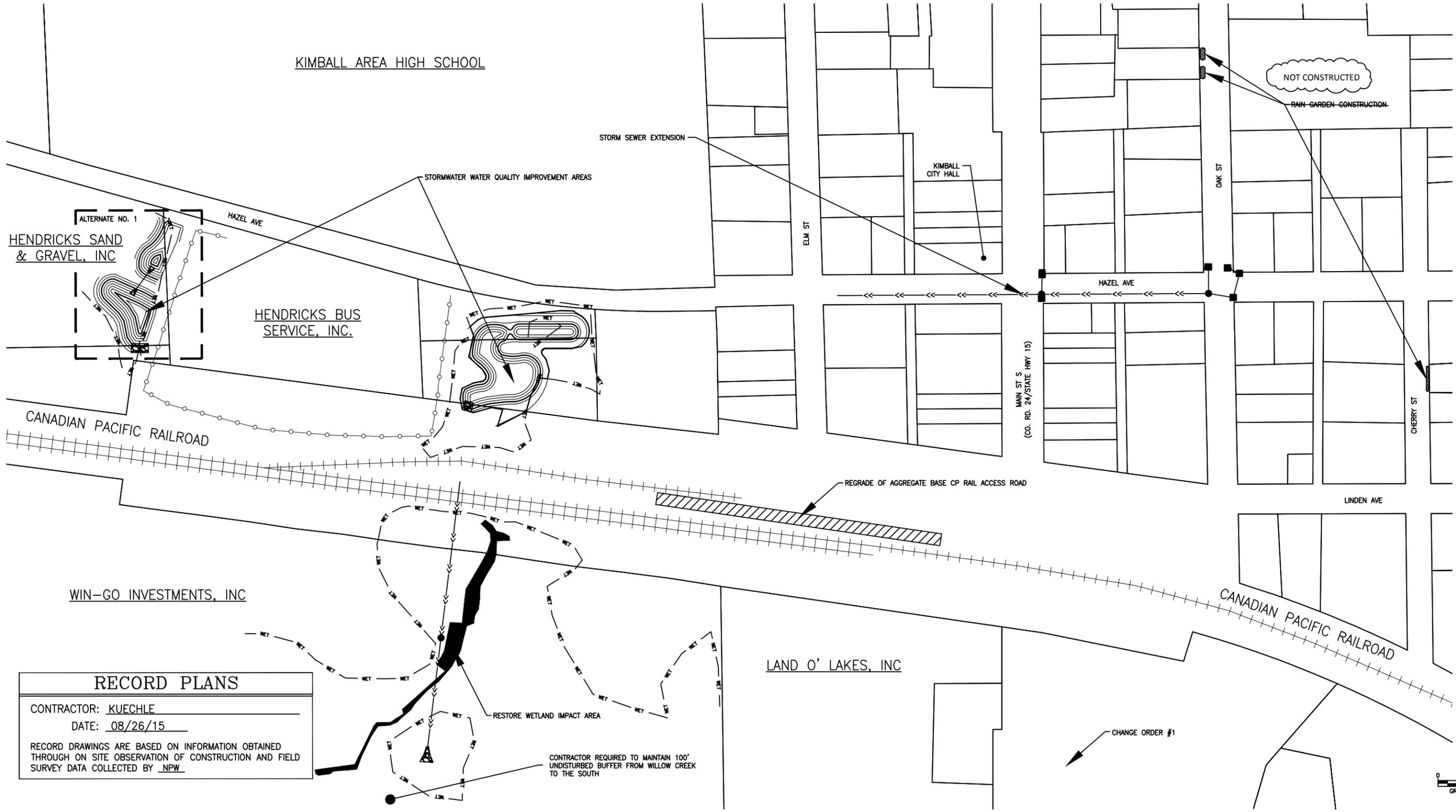
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A	ISSUED FOR REVIEW	KBM		8/26/13	
REV	REVISION DESCRIPTION	DWN	APP	REV DATE	

SEAL
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
KEVIN B. MATTON
DATE <u>10/9/13</u> REG. NO. <u>48386</u>

PRIME CONSULTANT
Wenck Associates, Inc. Consulting Engineers 1800 PIONEER CREEK CENTER MAPLE PLAIN, MN 55359
Web Site: www.wenck.com 763-479-4200 763-479-4242

PROJECT TITLE
KIMBALL PHASE II STORMWATER IMPROVEMENTS
CLEARWATER RIVER WATERSHED DISTRICT

SHEET TITLE			
TITLE SHEET			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.		SCALE	
0002-200		AS SHOWN	
SHEET NO.		REV NO.	
G-101		B	



RECORD PLANS

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DATE: 08/26/15

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 - CONTRACTOR SHOULD ANTICIPATE PRIVATE UTILITY SERVICES CONFLICTS THROUGHOUT THE PROJECT SUBCUT & TRENCH AREAS AND COORDINATE WITH PRIVATE UTILITY OWNERS.
 - NOTIFY ENGINEER IMMEDIATELY OF ALL EXISTING SEWER AND WATER SERVICE CONFLICTS.
 - CONTRACTOR TO STRIP & SALVAGE EXISTING TOPSOIL.
 - REVIEW ALL TREE REMOVALS WITH ENGINEER.
 - SALVAGE & REINSTALL STREET & TRAFFIC SIGNS AS REQUIRED.

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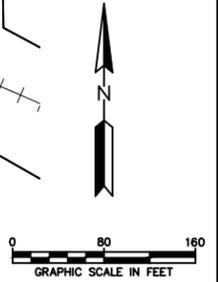
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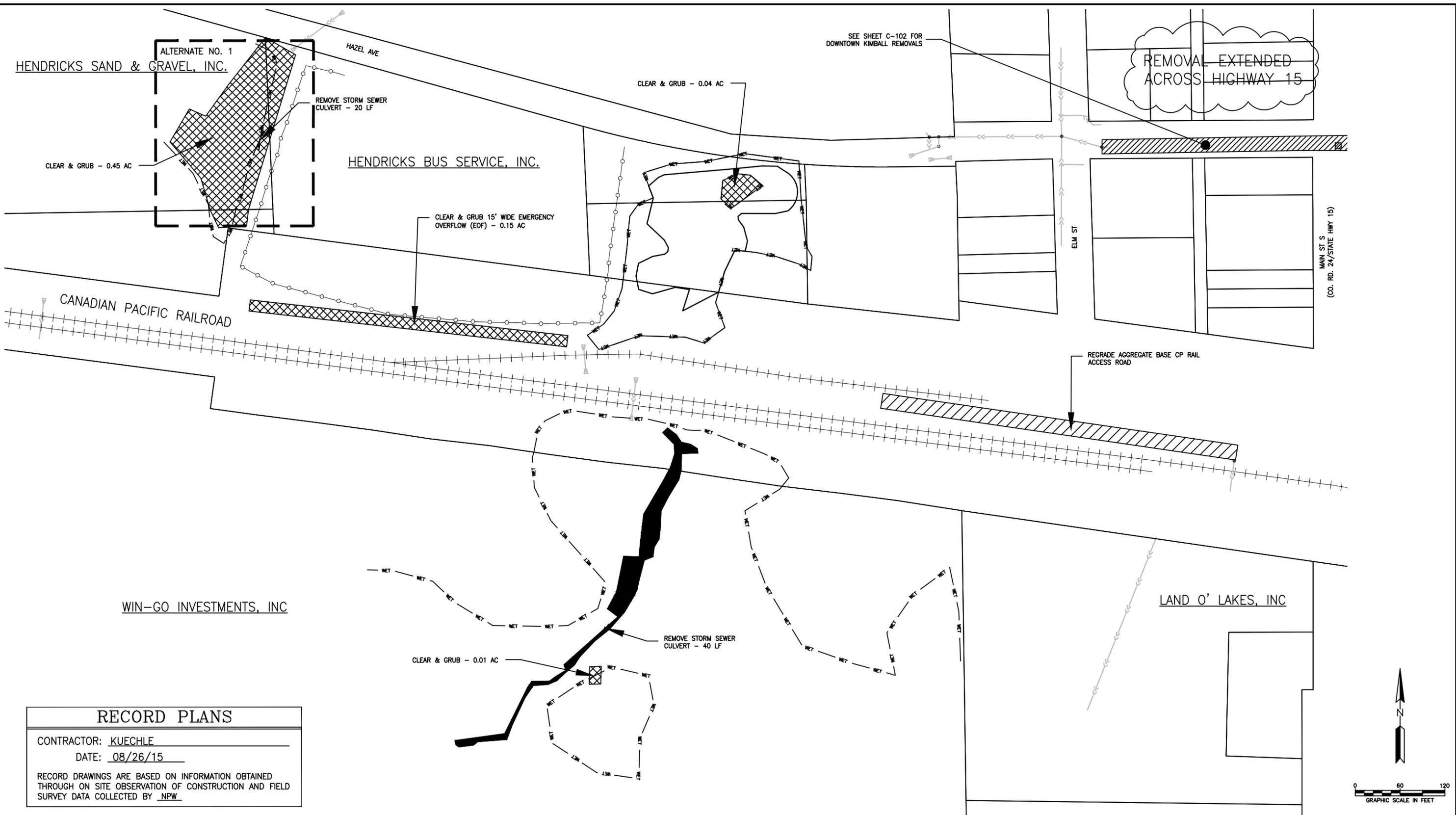
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WATERSHED DISTRICT

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KBM	RAK	KBM	AUG 2013
PROJECT NO.	SHEET NO.	SCALE	AS SHOWN
0002-200	G-102		
			REV NO.
			B



Plot Date & Time: 26 August 2015 12:16 PM

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RECORD PLANS

CONTRACTOR: KUECHLE

DATE: 08/26/15

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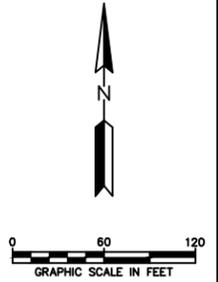
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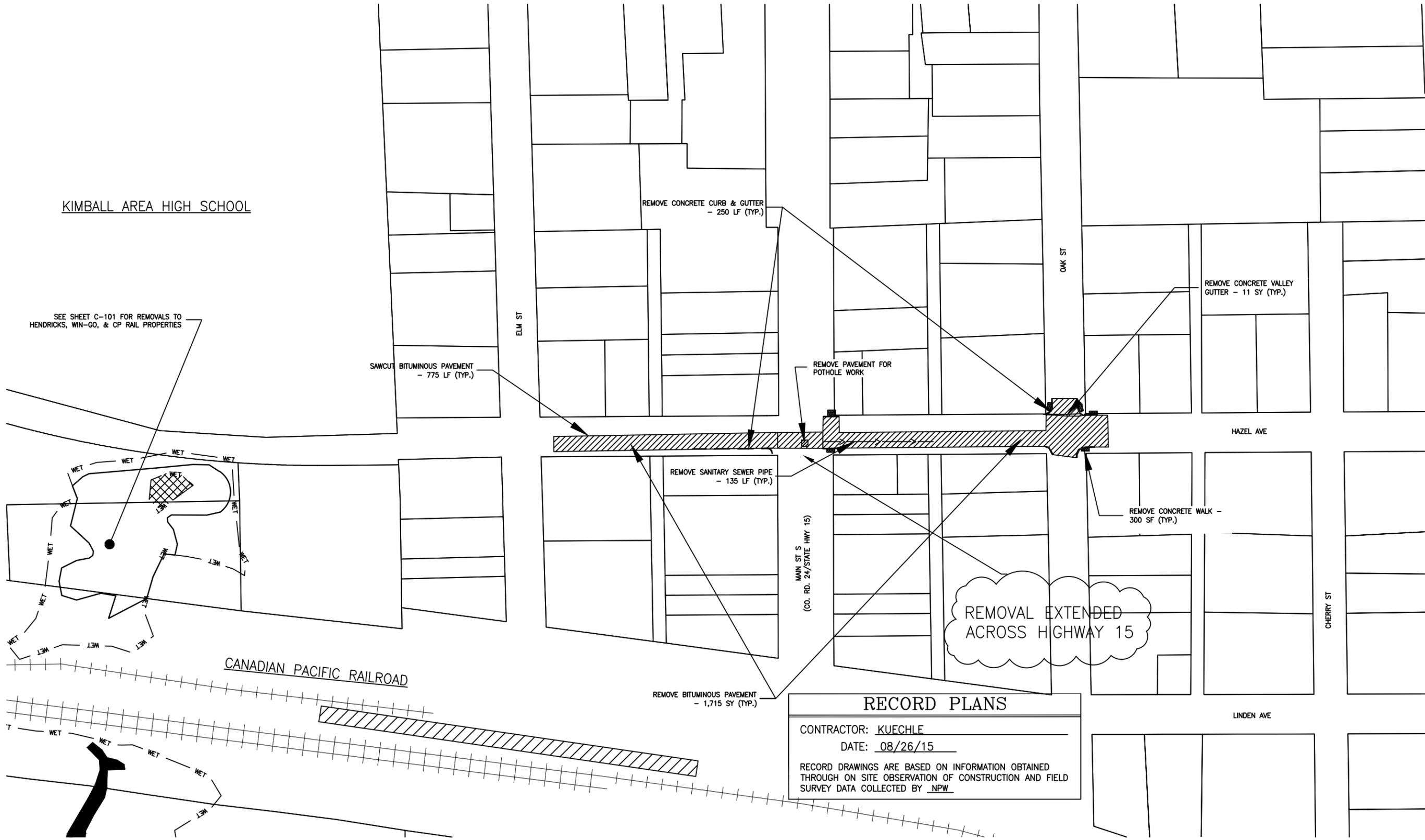
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 CLEARWATER RIVER
 WATERSHED DISTRICT

SHEET TITLE			
EXISTING CONDITION & REMOVAL PLAN - WESTERN AREAS			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	
SHEET NO. C-101		REV NO. B	





SEE SHEET C-101 FOR REMOVALS TO HENDRICKS, WIN-GO, & CP RAIL PROPERTIES

REMOVAL EXTENDED ACROSS HIGHWAY 15

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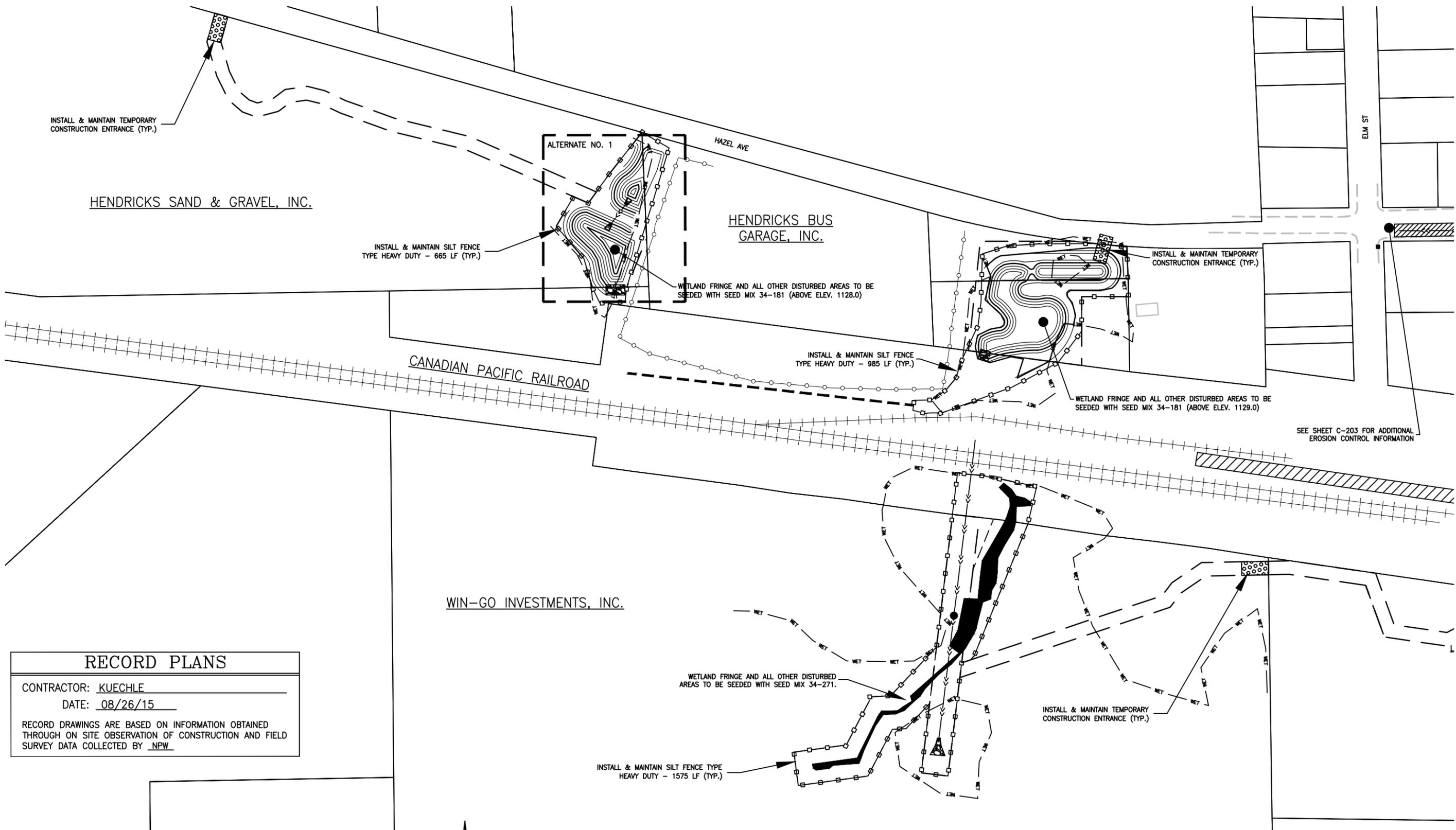
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PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**
 CLEARWATER RIVER
 WATERSHED DISTRICT

SHEET TITLE			
EXISTING CONDITION & REMOVAL PLAN-DOWNTOWN KIMBALL			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.	SHEET NO.	SCALE	AS SHOWN
0002-200	C-102		
			REV NO.
			B



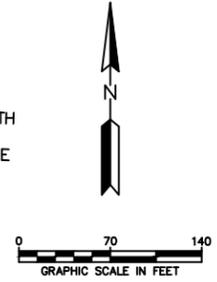
SEE SHEET C-203 FOR ADDITIONAL EROSION CONTROL INFORMATION

RECORD PLANS

CONTRACTOR: KUECHLE
 DATE: 08/26/15

RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY NPW

- GENERAL NOTES**
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 3. CONTRACTOR SHOULD ANTICIPATE PRIVATE UTILITY SERVICES CONFLICTS THROUGHOUT THE PROJECT SUBCUT & TRENCH AREAS AND COORDINATE WITH PRIVATE UTILITY OWNERS.
 4. NOTIFY ENGINEER IMMEDIATELY OF ALL EXISTING SEWER AND WATER SERVICE CONFLICTS.
 5. CONTRACTOR TO STRIP & SALVAGE EXISTING TOPSOIL.
 6. REVIEW ALL TREE REMOVALS WITH ENGINEER.
 7. SALVAGE & REINSTALL STREET & TRAFFIC SIGNS AS REQUIRED.



REV	REVISION DESCRIPTION	DWN	APP	REV DATE
B	ISSUED FOR BID	KBM	KBM	10/9/13
A	ISSUED FOR REVIEW	KBM		8/26/13

SEAL

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Kevin B. Mattson

KEVIN B. MATTSON
 DATE 10/9/13 REG. NO. 48386

PRIME CONSULTANT

Wenck
 Consulting Engineers

1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359

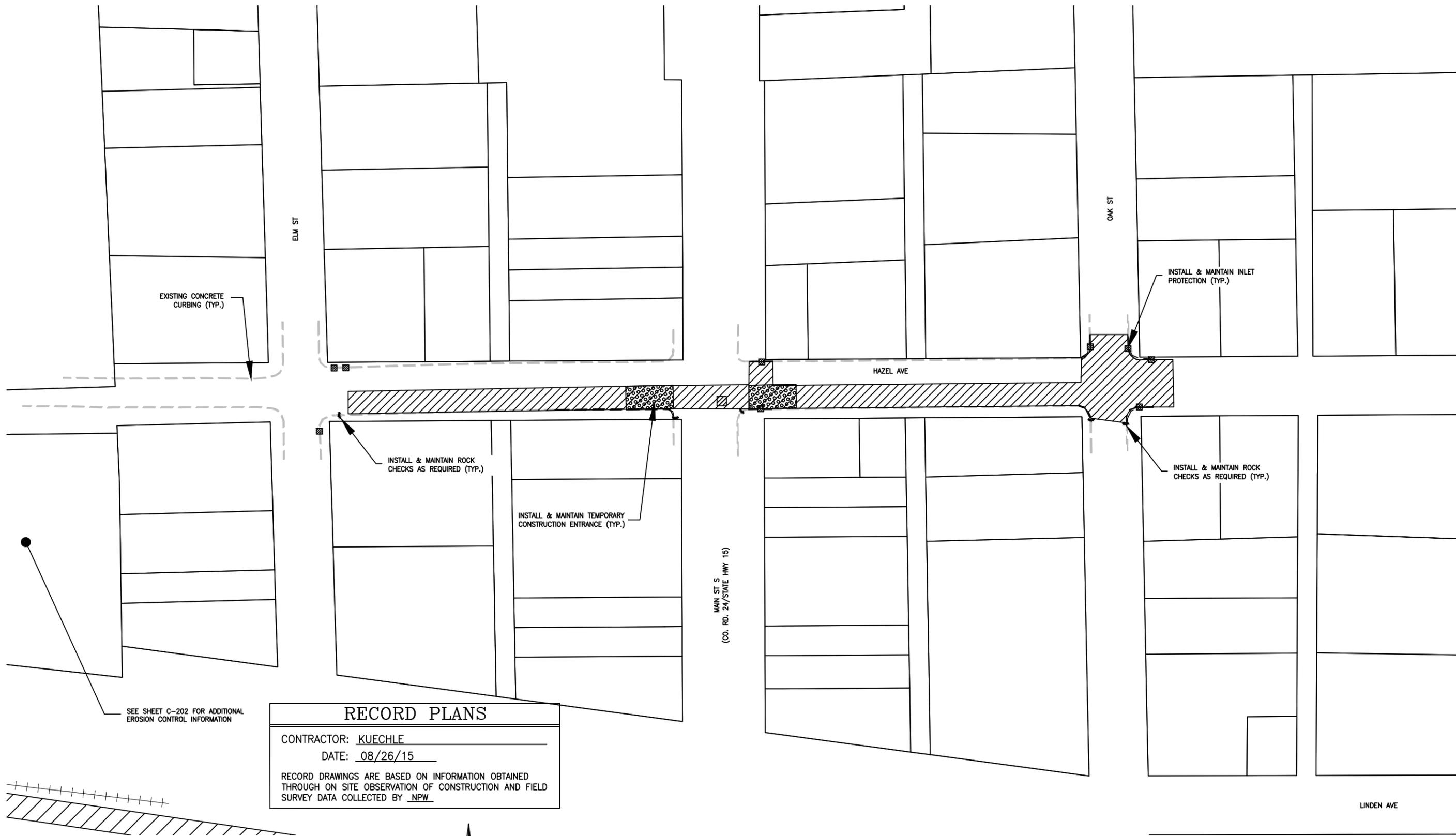
763-479-4200
 763-479-4242

PROJECT TITLE

**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**

**CLEARWATER RIVER
 WATERSHED DISTRICT**

SHEET TITLE			
EROSION CONTROL PLAN WESTERN AREAS			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	SHEET NO. C-202
			REV NO. B



SEE SHEET C-202 FOR ADDITIONAL EROSION CONTROL INFORMATION

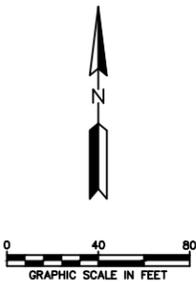
RECORD PLANS

CONTRACTOR: KUECHLE
 DATE: 08/26/15

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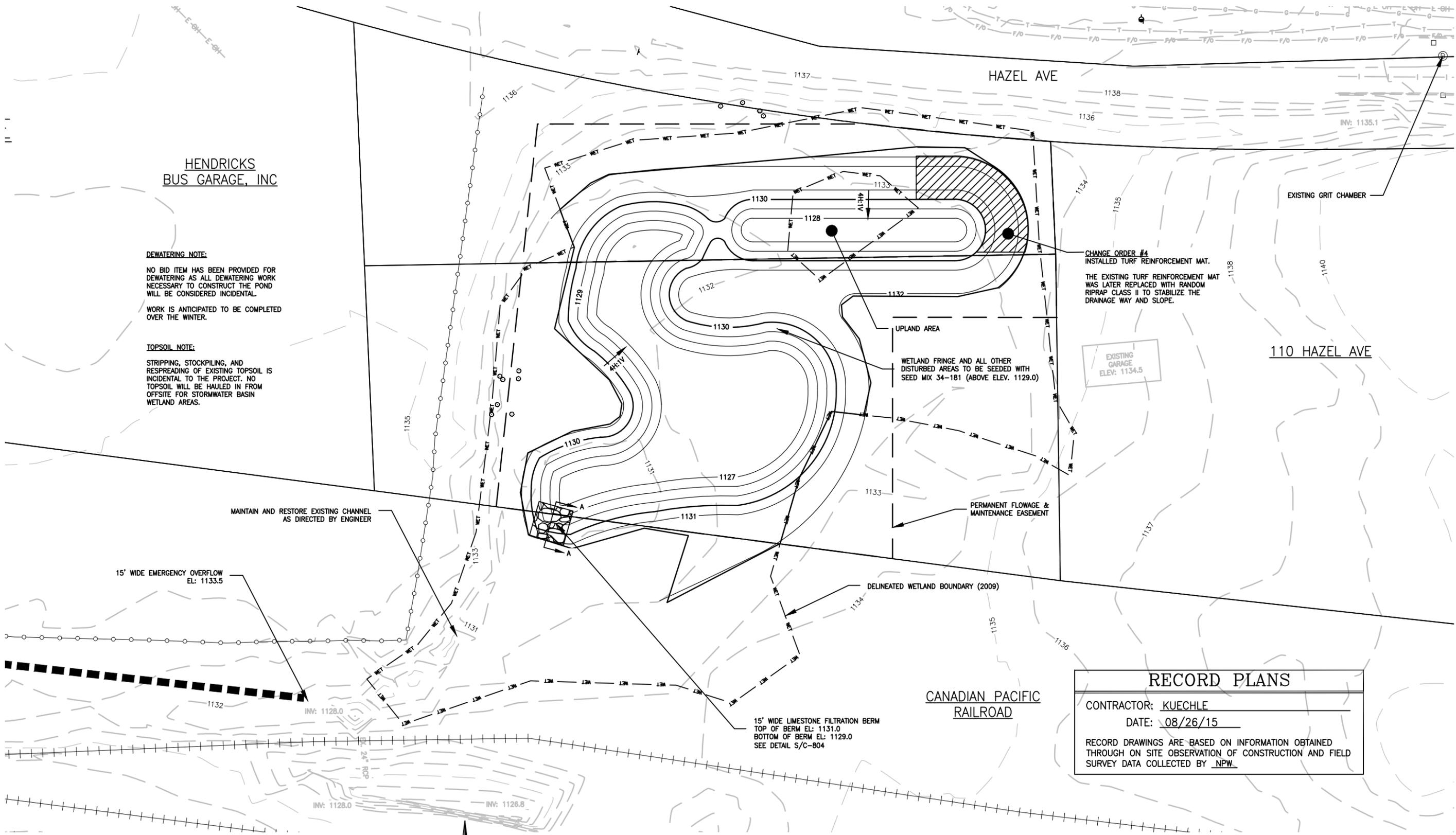
PRIME CONSULTANT

Wenck
 Consulting Engineers
 1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359
 763-479-4200
 763-479-4242
 Web Site: www.wenck.com

PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**

**CLEARWATER RIVER
 WATERSHED DISTRICT**

SHEET TITLE			
EROSION CONTROL PLAN DOWNTOWN KIMBALL			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200	SHEET NO. C-203	SCALE AS SHOWN	REV NO. B



**HENDRICKS
BUS GARAGE, INC**

DEWATERING NOTE:
NO BID ITEM HAS BEEN PROVIDED FOR DEWATERING AS ALL DEWATERING WORK NECESSARY TO CONSTRUCT THE POND WILL BE CONSIDERED INCIDENTAL.
WORK IS ANTICIPATED TO BE COMPLETED OVER THE WINTER.

TOPSOIL NOTE:
STRIPPING, STOCKPILING, AND RESPREADING OF EXISTING TOPSOIL IS INCIDENTAL TO THE PROJECT. NO TOPSOIL WILL BE HAULED IN FROM OFFSITE FOR STORMWATER BASIN WETLAND AREAS.

CHANGE ORDER #4
INSTALLED TURF REINFORCEMENT MAT. THE EXISTING TURF REINFORCEMENT MAT WAS LATER REPLACED WITH RANDOM RIPRAP CLASS II TO STABILIZE THE DRAINAGE WAY AND SLOPE.

EXISTING GARAGE
ELEV: 1134.5

15' WIDE EMERGENCY OVERFLOW
EL: 1133.5

MAINTAIN AND RESTORE EXISTING CHANNEL
AS DIRECTED BY ENGINEER

PERMANENT FLOWAGE & MAINTENANCE EASEMENT

15' WIDE LIMESTONE FILTRATION BERM
TOP OF BERM EL: 1131.0
BOTTOM OF BERM EL: 1129.0
SEE DETAIL S/C-804

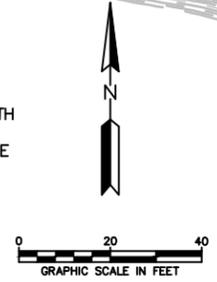
DELINEATED WETLAND BOUNDARY (2009)

CANADIAN PACIFIC
RAILROAD

RECORD PLANS	
CONTRACTOR: <u>KUECHLE</u>	DATE: <u>08/26/15</u>
RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY <u>NPW</u>	

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KEVIN B. MATTSON
DATE 10/9/13 REG. NO. 48386

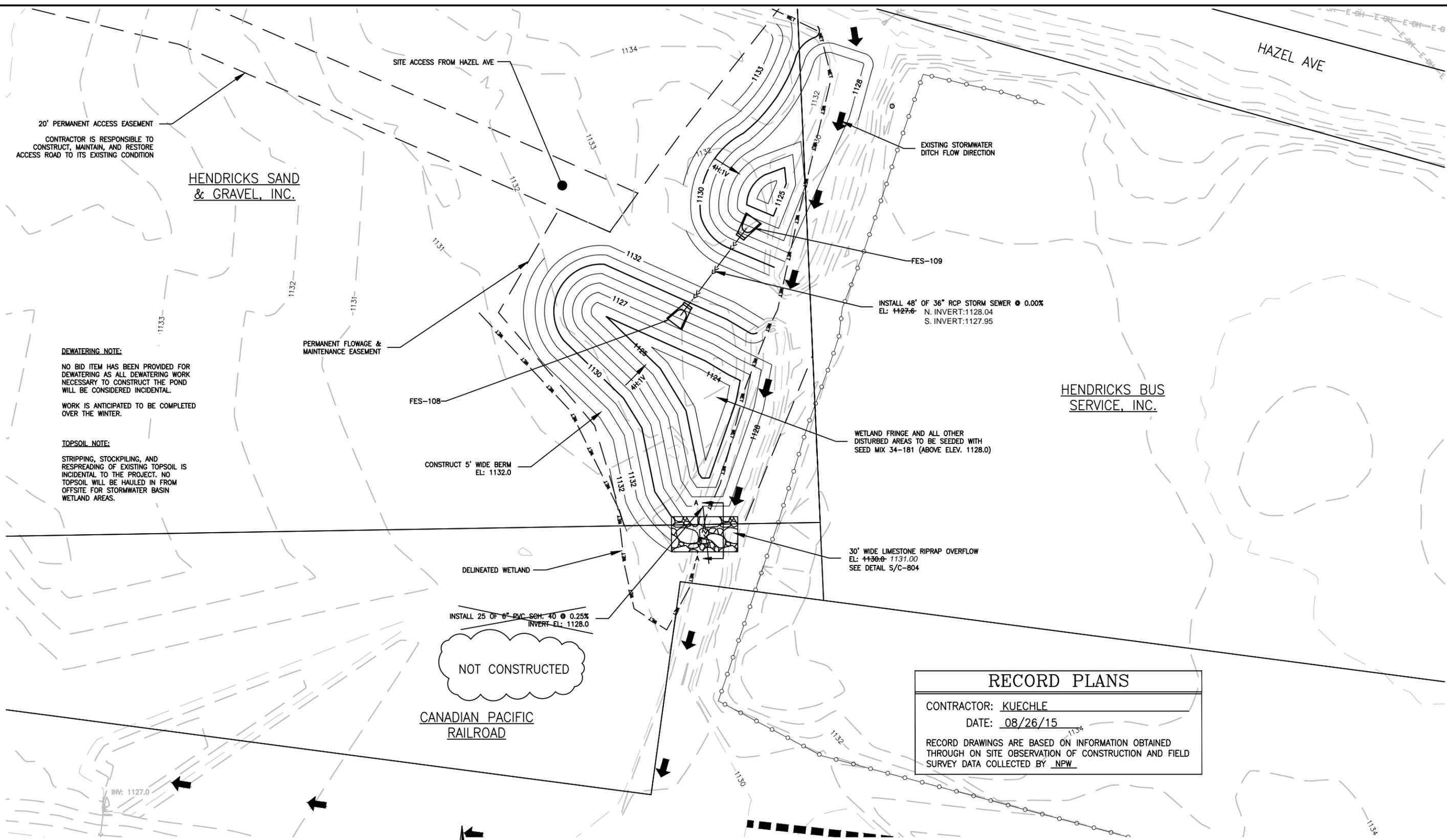
PRIME CONSULTANT

Wenck Associates, Inc.
Consulting Engineers
1800 PRINER CREEK CENTER
MAPLE PLAIN, MN 55359
763-479-4200
763-479-4242
Web Site: www.wenck.com

PROJECT TITLE
**KIMBALL PHASE II
STORMWATER IMPROVEMENTS**

CLEARWATER RIVER
WATERSHED DISTRICT

SHEET TITLE GRADING PLAN HENDRICKS EAST			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	SHEET NO. C-301
			REV NO. B



20' PERMANENT ACCESS EASEMENT
 CONTRACTOR IS RESPONSIBLE TO CONSTRUCT, MAINTAIN, AND RESTORE ACCESS ROAD TO ITS EXISTING CONDITION

HENDRICKS SAND & GRAVEL, INC.

HENDRICKS BUS SERVICE, INC.

DEWATERING NOTE:
 NO BID ITEM HAS BEEN PROVIDED FOR DEWATERING AS ALL DEWATERING WORK NECESSARY TO CONSTRUCT THE POND WILL BE CONSIDERED INCIDENTAL.
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PERMANENT FLOWAGE & MAINTENANCE EASEMENT

FES-108

CONSTRUCT 5' WIDE BERM
 EL: 1132.0

DELINEATED WETLAND

INSTALL 25 OF 6" PVC SCH. 40 @ 0.25%
 INVERT EL: 1128.0

NOT CONSTRUCTED

CANADIAN PACIFIC RAILROAD

EXISTING STORMWATER DITCH FLOW DIRECTION

FES-109

INSTALL 48' OF 36" RCP STORM SEWER @ 0.00%
 N. INVERT: 1128.04
 S. INVERT: 1127.95

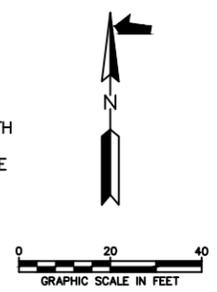
WETLAND FRINGE AND ALL OTHER DISTURBED AREAS TO BE SEEDED WITH SEED MIX 34-181 (ABOVE ELEV. 1128.0)

30' WIDE LIMESTONE RIPRAP OVERFLOW
 EL: 1130.0-1131.00
 SEE DETAIL S/C-804

RECORD PLANS
 CONTRACTOR: KUECHLE
 DATE: 08/26/15
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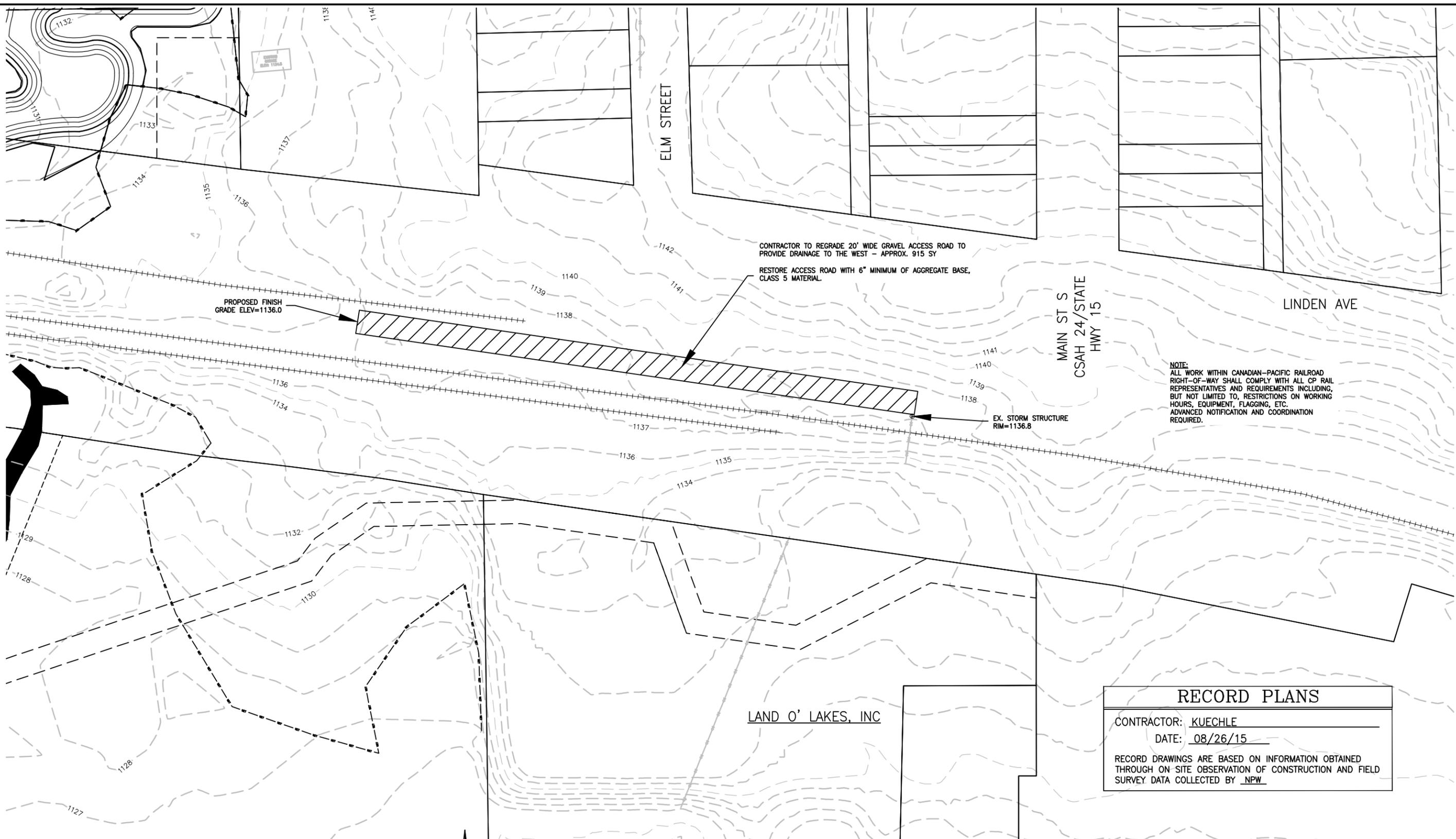
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 KEVIN B. MATTON
 DATE 10/9/13 REG. NO. 48386

PRIME CONSULTANT

 Wenck Associates, Inc.
 Consulting Engineers
 1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359
 763-479-4200
 763-479-4242
 Web Site: www.wenck.com

PROJECT TITLE
KIMBALL PHASE II STORMWATER IMPROVEMENTS
 CLEARWATER RIVER WATERSHED DISTRICT

SHEET TITLE			
GRADING PLAN HENDRICKS WEST - ALT. #1			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.		SCALE	
0002-200		AS SHOWN	
SHEET NO.		REV NO.	
C-302		B	

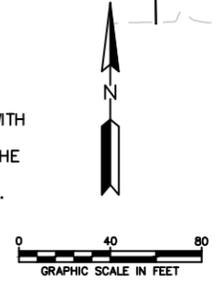


NOTE:
 ALL WORK WITHIN CANADIAN-PACIFIC RAILROAD
 RIGHT-OF-WAY SHALL COMPLY WITH ALL CP RAIL
 REPRESENTATIVES AND REQUIREMENTS INCLUDING,
 BUT NOT LIMITED TO, RESTRICTIONS ON WORKING
 HOURS, EQUIPMENT, FLAGGING, ETC.
 ADVANCED NOTIFICATION AND COORDINATION
 REQUIRED.

RECORD PLANS	
CONTRACTOR:	KUECHLE
DATE:	08/26/15
RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON-SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY <u>NPW</u>	

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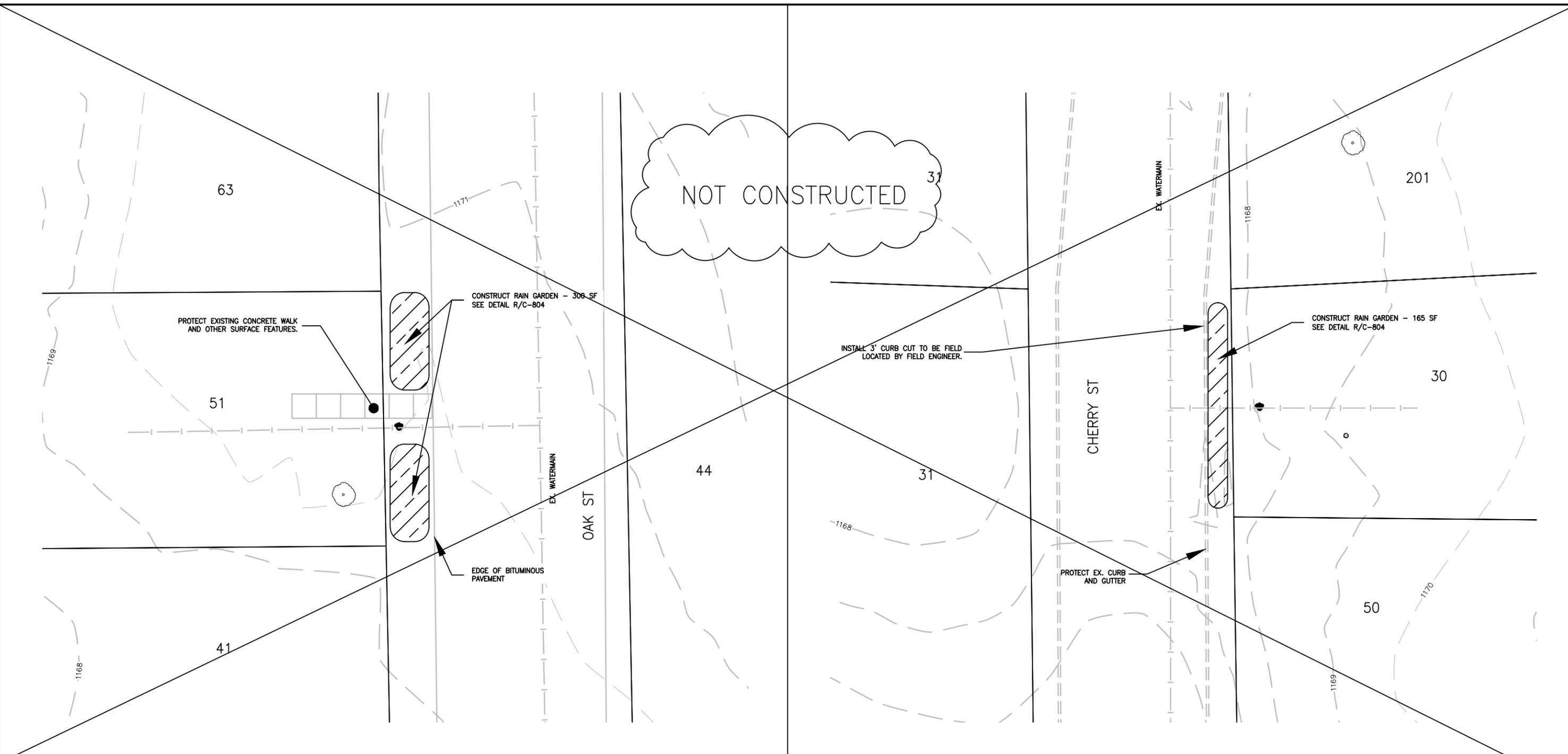
PRIME CONSULTANT

Wenck Associates, Inc.
 Consulting Engineers
 1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359
 763-479-4200
 763-479-4242
 Web Site: www.wenck.com

PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**

CLEARWATER RIVER
 WATERSHED DISTRICT

SHEET TITLE GRADING PLAN CP RAIL ACCESS ROAD			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	SHEET NO. C-303
			REV NO. B



RECORD PLANS

CONTRACTOR: KUECHLE

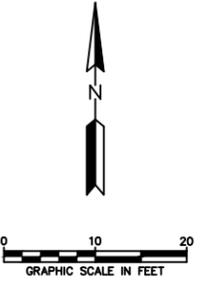
DATE: 08/26/15

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51 OAK ST N

30 CHERRY ST S

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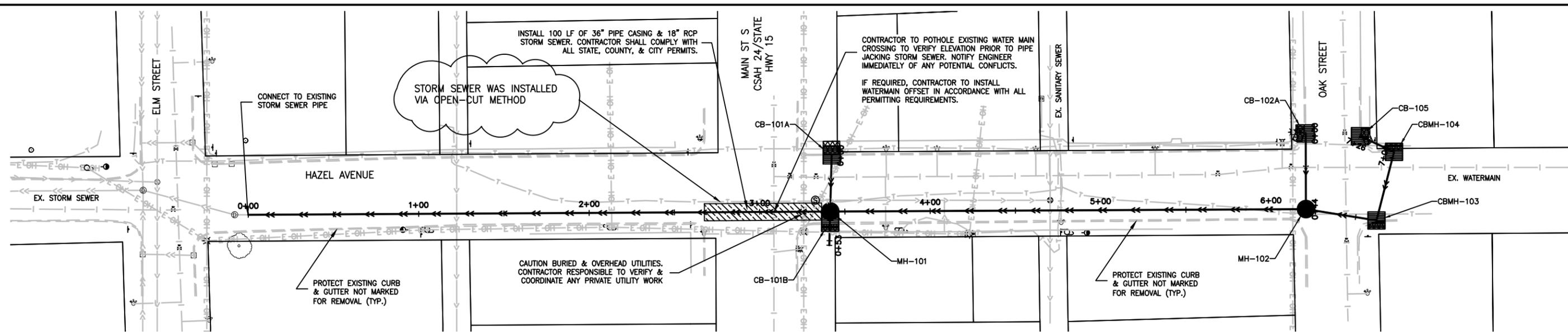
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MAPLE PLAIN, MN 55359

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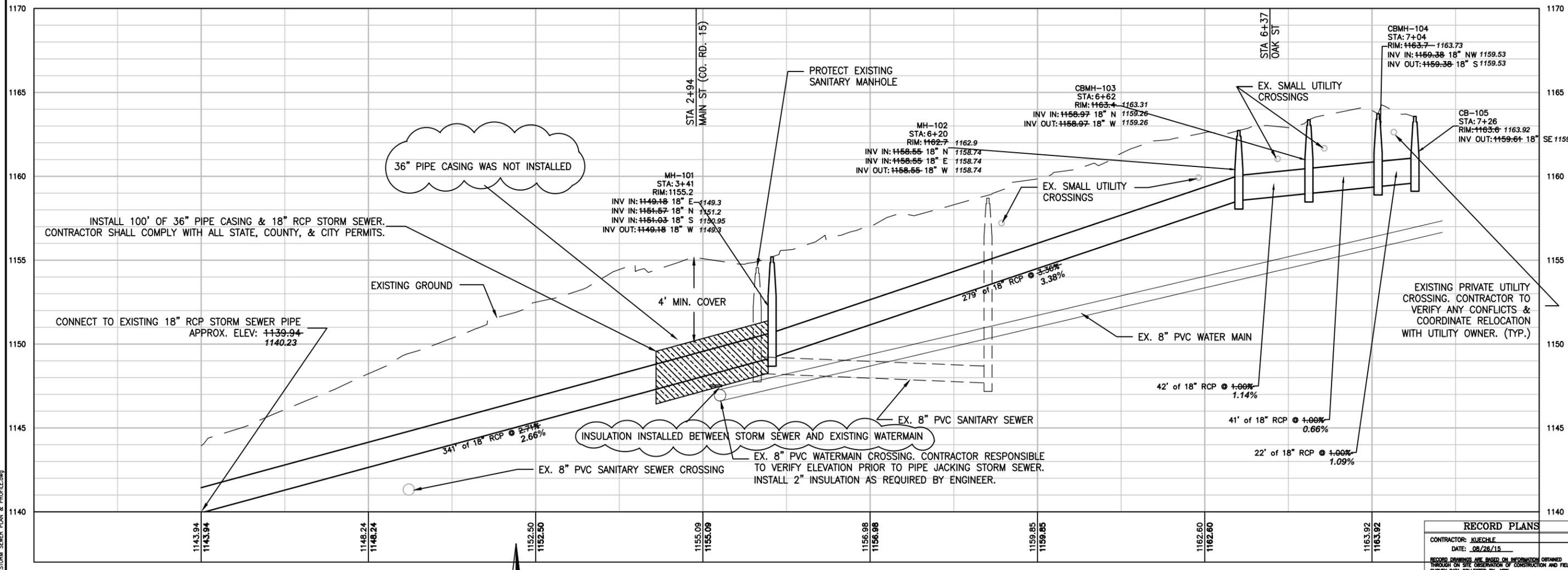
PROJECT TITLE
**KIMBALL PHASE II
STORMWATER IMPROVEMENTS**

CLEARWATER RIVER
WATERSHED DISTRICT

SHEET TITLE			
GRADING PLAN RAIN GARDENS			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	REV NO. B
SHEET NO. C-304			



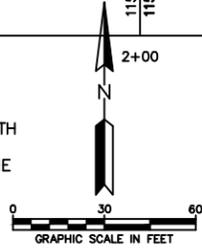
HAZEL AVE



RECORD PLANS	
CONTRACTOR:	KUECHLE
DATE:	08/26/15
RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON-SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY JEM.	

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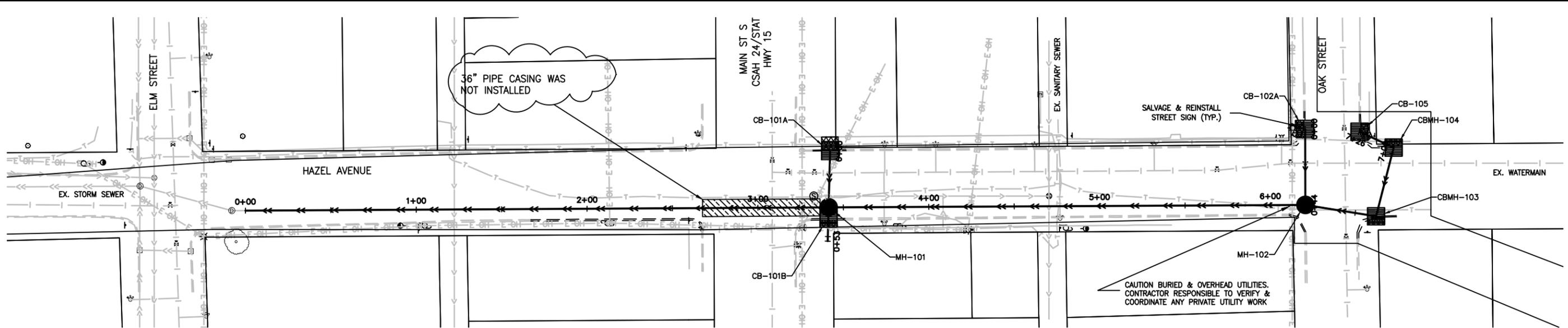
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 KEVIN B. MATSON
 DATE 10/9/13 REG. NO. 48386

PRIME CONSULTANT

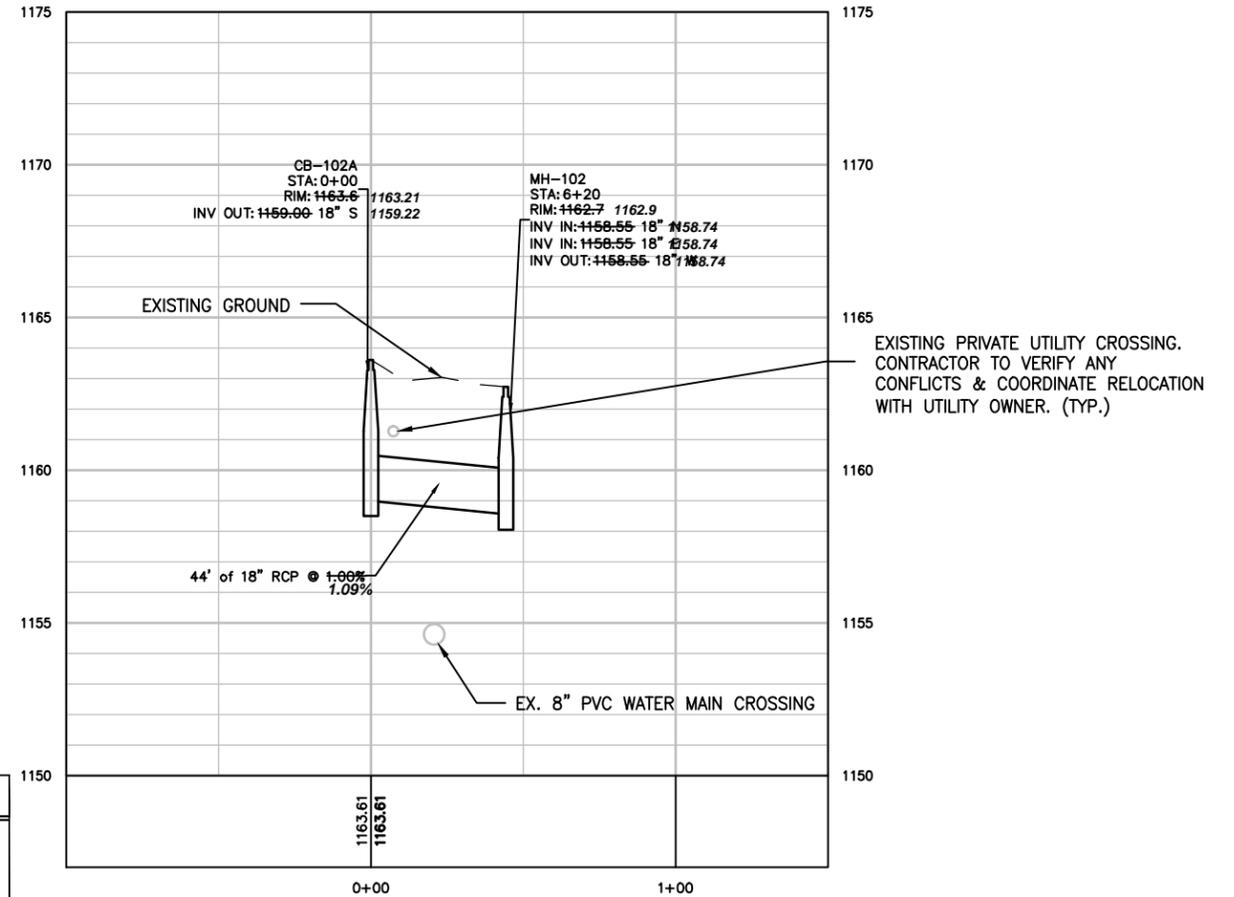
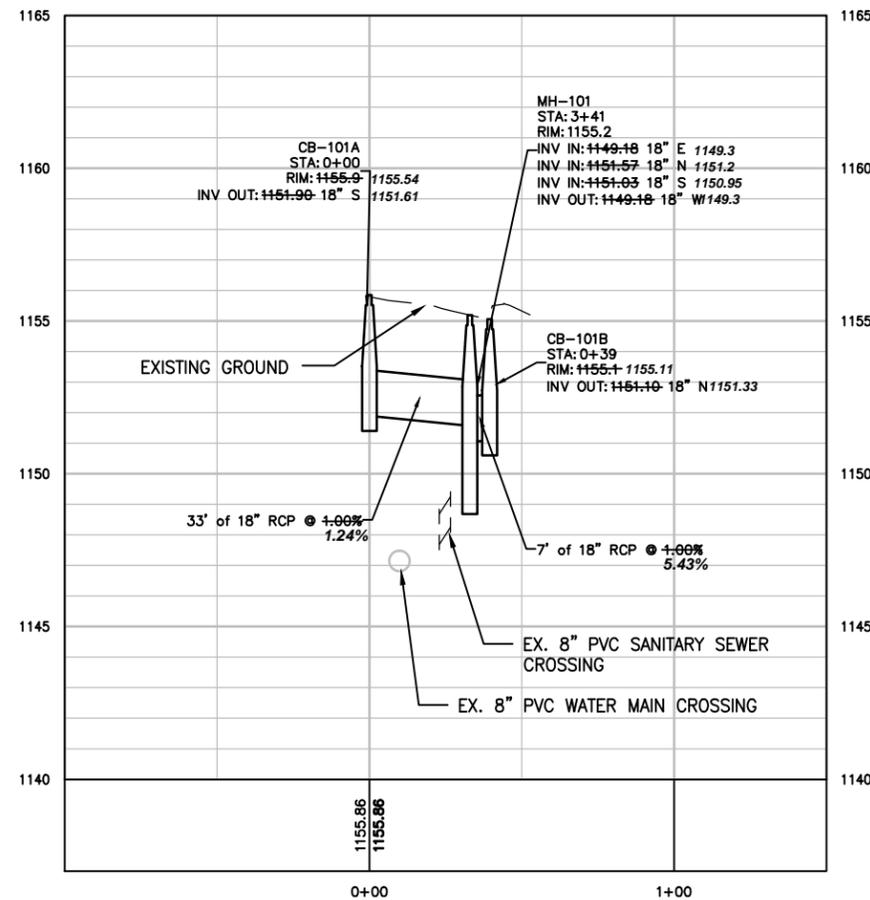
 Wenck Associates, Inc.
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 763-479-4242

PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**
 CLEARWATER RIVER
 WATERSHED DISTRICT

SHEET TITLE			
STORM SEWER PLAN & PROFILE HAZEL AVE			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.		SCALE	
0002-200		AS SHOWN	
SHEET NO.		REV NO.	
C-501		B	



HAZEL AVE - STORM LEADS



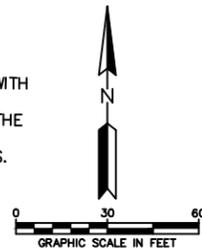
RECORD PLANS

CONTRACTOR: KUECHLE
DATE: 08/26/15

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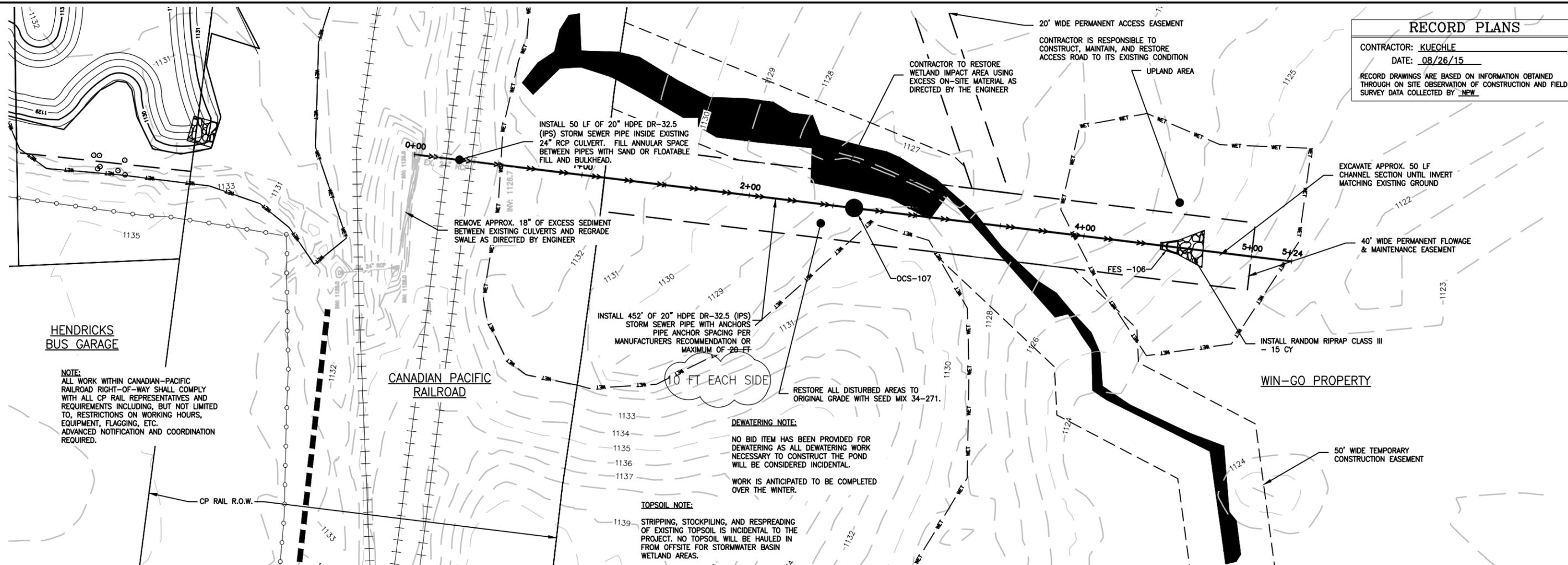
PRIME CONSULTANT
Wenck
Wenck Associates, Inc.
Consulting Engineers
1800 PIONEER CREEK CENTER
MAPLE PLAIN, MN 55359
763-479-4200
763-479-4242

PROJECT TITLE
KIMBALL PHASE II
STORMWATER IMPROVEMENTS
CLEARWATER RIVER
WATERSHED DISTRICT

SHEET TITLE			
STORM SEWER PLAN & PROFILE HAZEL AVE STORM LEADS			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.		SCALE	
0002-200		AS SHOWN	
SHEET NO.		REV NO.	
C-502		B	

RECORD PLANS

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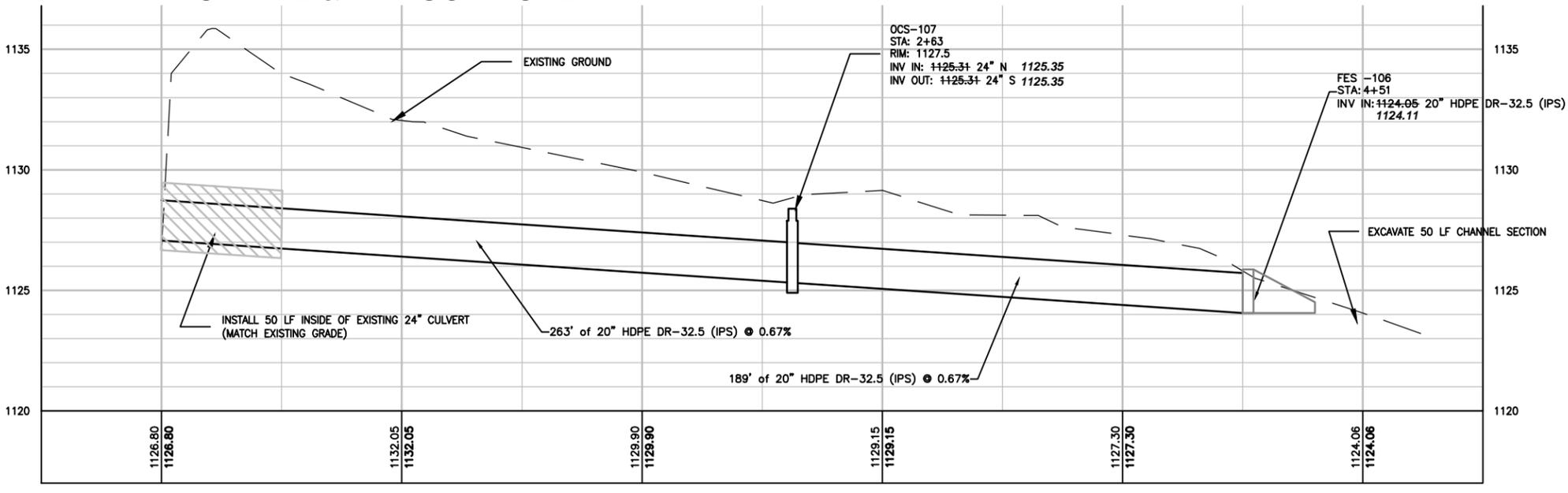
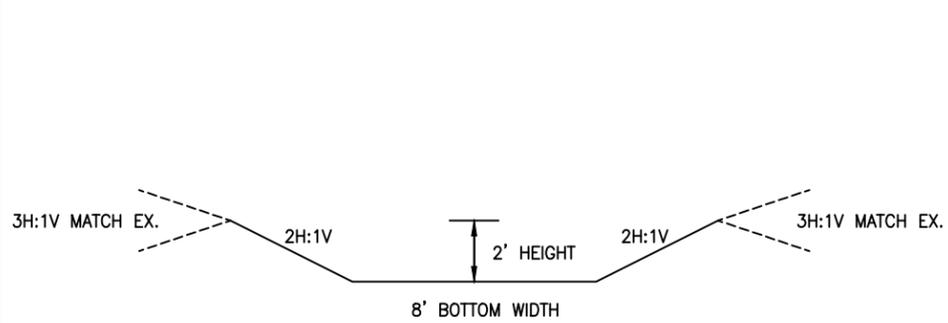
HENDRICKS BUS GARAGE

CANADIAN PACIFIC RAILROAD

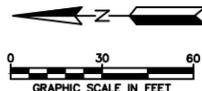
WIN-GO PROPERTY

CP RAIL & WIN-GO PROPERTY

NOTE:
 ALL WORK WITHIN CANADIAN-PACIFIC RAILROAD RIGHT-OF-WAY SHALL COMPLY WITH ALL CP RAIL REPRESENTATIVES AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, RESTRICTIONS ON WORKING HOURS, EQUIPMENT, FLAGGING, ETC. ADVANCED NOTIFICATION AND COORDINATION REQUIRED.



- GENERAL NOTES**
1. ALL QUANTITIES ARE APPROXIMATE AND MAY VARY TO ALLOW COMPLETION OF WORK.
 2. PRIVATE UTILITIES ARE SHOWN IN GENERAL LOCATIONS. CONTRACTOR TO COORDINATE WITH PRIVATE UTILITY OWNERS PER GOPHER STATE ONE REQUIREMENTS.
 3. CONTRACTOR SHOULD ANTICIPATE PRIVATE UTILITY SERVICES CONFLICTS THROUGHOUT THE PROJECT SUBCUT & TRENCH AREAS AND COORDINATE WITH PRIVATE UTILITY OWNERS.
 4. NOTIFY ENGINEER IMMEDIATELY OF ALL EXISTING SEWER AND WATER SERVICE CONFLICTS.
 5. CONTRACTOR TO STRIP & SALVAGE EXISTING TOPSOIL.
 6. REVIEW ALL TREE REMOVALS WITH ENGINEER.
 7. SALVAGE & REINSTALL STREET & TRAFFIC SIGNS AS REQUIRED.



0+00	1+00	2+00	3+00	4+00	5+00
1126.80 1126.80	1132.05 1132.05	1129.90 1129.90	1129.15 1129.15	1127.30 1127.30	1124.06 1124.06
SEAL	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.				
B ISSUED FOR BID	KBM KBM	10/9/13	KEVIN B. MATTSON		
A ISSUED FOR REVIEW	KBM	8/26/13	DATE 10/9/13 REG. NO. 48386		
REV	REVISION DESCRIPTION	DWN APP	REV DATE		

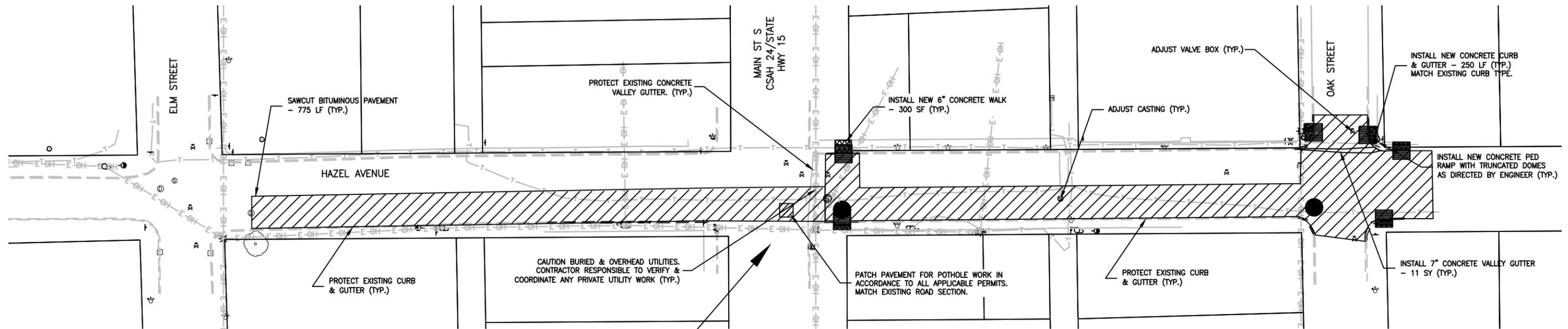
PRIME CONSULTANT

Wenck
 Wenck Associates, Inc.
 Consulting Engineers
 1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359
 763-479-4200
 763-479-4242

PROJECT TITLE
KIMBALL PHASE II STORMWATER IMPROVEMENTS

CLEARWATER RIVER WATERSHED DISTRICT

SHEET TITLE			PROJECT NO.		
STORM SEWER PLAN & PROFILE CP RAIL & WIN-GO PROPERTY			0002-200		
DWN BY	CHK'D	APP'D	DWG DATE	AUG 2013	
KBM	RAK	KBM	SCALE	AS SHOWN	
SHEET NO.			REV NO.		
C-503			B		



HAZEL AVE

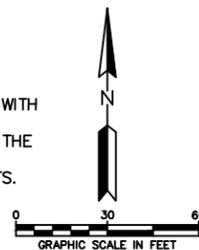
STREET REPAIR COMPLETED ACROSS HIGHWAY 15

RECORD PLANS

CONTRACTOR: KUECHLE
 DATE: 08/26/15
 RECORD DRAWINGS ARE BASED ON INFORMATION OBTAINED THROUGH ON SITE OBSERVATION OF CONSTRUCTION AND FIELD SURVEY DATA COLLECTED BY NPW

GENERAL NOTES

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- PRIVATE UTILITIES ARE SHOWN IN GENERAL LOCATIONS. CONTRACTOR TO COORDINATE WITH PRIVATE UTILITY OWNERS PER GOPHER STATE ONE REQUIREMENTS.
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- CONTRACTOR TO STRIP & SALVAGE EXISTING TOPSOIL.
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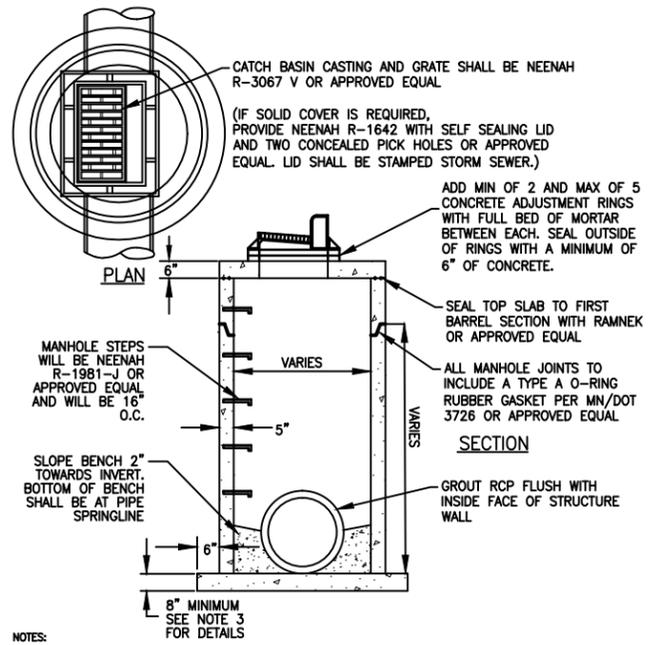
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 KEVIN B. MATTSO
 DATE 10/9/13 REG. NO. 48386

PRIME CONSULTANT

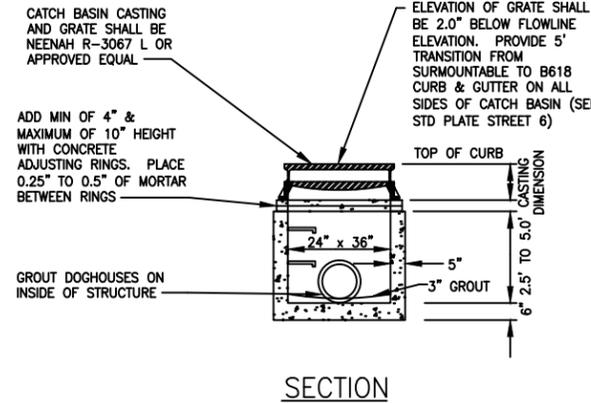
 Wenck Associates, Inc.
 Consulting Engineers
 1800 PIONEER CREEK CENTER
 MAPLE PLAIN, MN 55359
 763-479-4200
 763-479-4242
 Web Site: www.wenck.com

PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**
 CLEARWATER RIVER
 WATERSHED DISTRICT

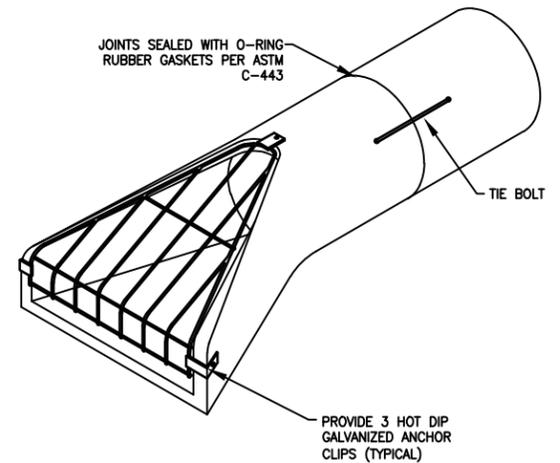
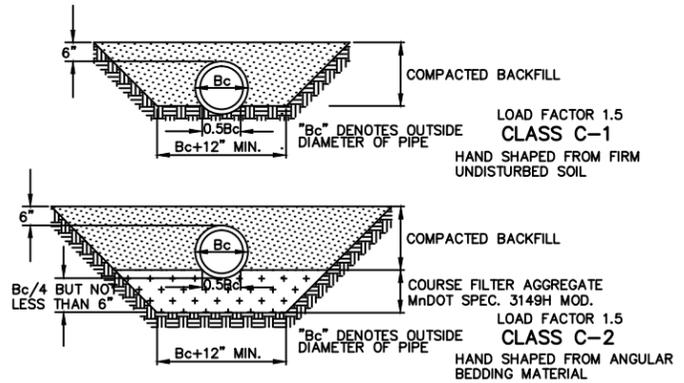
SHEET TITLE			
STREET PLAN HAZEL AVE			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200		SCALE AS SHOWN	SHEET NO. C-601
			REV NO. B



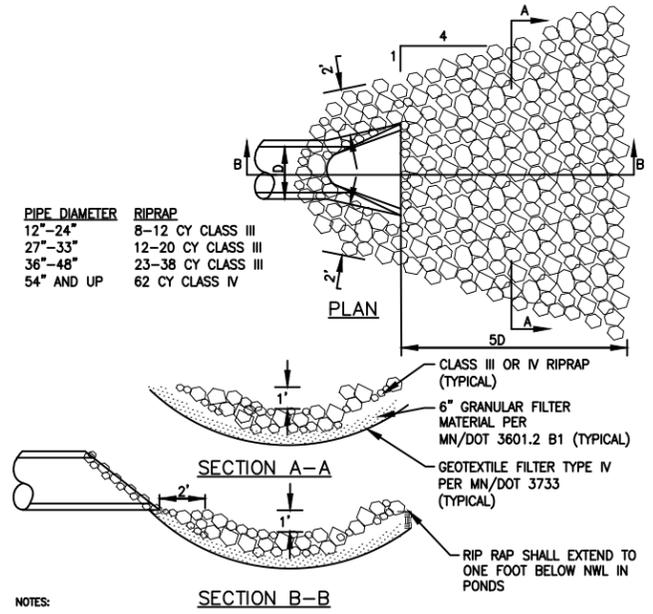
- NOTES:
- MANHOLE COVER & CASTING SHALL INCLUDE SELF-SEALING TYPE LIDS WITH TWO CONCEALED PICK HOLES AND SHALL BE STAMPED "STORM SEWER".
 - UNSUITABLE FOUNDATION MATERIALS, WHEN ENCOUNTERED AT OR BELOW THE FOUNDATION ELEVATION, SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL. FOUNDATION PREPARATION SHALL BE PER MN/DOT 2451.3C.
 - MIN. BOTTOM SLAB THICKNESS IS 8" FOR 14" DEPTH OR LESS. THICKNESS INCREASES 1" FOR EACH 4" OF ADDITIONAL DEPTH. DRAIN HOLES IN BASE NOT ALLOWED UNLESS SPECIFIED BY ENGINEER.
 - REINFORCE BOTTOM SLAB.
 - NO BLOCK STRUCTURES ALLOWED.
 - STEPS SHALL BE ON MANHOLE'S DOWNSTREAM SIDE FOR PIPE DIAMETERS 18" OR LESS. FOR PIPE DIAMETERS GREATER THAN 18" POSITION STEPS TO PROVIDE ACCESS TO MANHOLE BENCH.



- NOTES:
- UNSUITABLE FOUNDATION MATERIALS, WHEN ENCOUNTERED AT OR BELOW THE FOUNDATION ELEVATION, SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
 - FOUNDATION PREPARATION SHALL BE PER MN/DOT 2451.3C.
 - STEPS SHALL BE PROVIDED IN ALL STORM DRAIN STRUCTURES WITH DEPTH OVER 4' (SEE STANDARD PLATE SEWER 2 FOR STEP REQUIREMENTS).
 - CASTING TO BE COMPLETELY ENCASED IN CONCRETE CURB SECTION.
 - BLOCK STRUCTURES ARE NOT PERMITTED.
 - WOOD SHIMS ARE NOT PERMITTED FOR USE WITH ADJUSTING RINGS.



- NOTES:
- ALL FLARED END SECTIONS SHALL BE COVERED BY A TRASH GUARD SIZED PER MANUFACTURERS STANDARDS AND APPROVED BY ENGINEER.
 - TIE BOLT HOLES MUST BE PROVIDED FOR INSTALLATION OF TIE BOLTS BETWEEN THE FLARED END SECTION AND ADJACENT PIPE. THE LAST THREE PIPE SECTIONS.



- NOTES:
- THE RIPRAP FOUNDATION SHALL BE EXCAVATED AND SHAPED TO THE CROSS-SECTIONS INDICATED IN PLANS.
 - FOUNDATION MATERIAL SHALL BE COMPACTED BEFORE PLACEMENT OF RIPRAP OR FILTER MATERIAL.
 - 6" OF FILTER MATERIAL SHALL COVER THE ENTIRE AREA ON WHICH RIPRAP WILL BE PLACED.
 - THE GEOTEXTILE FABRIC SHALL BE PLACED SMOOTHLY AND BE FREE OF DEBRIS THAT COULD PUNCTURE FABRIC.
 - PLACED FABRIC WITH LONGEST DIMENSION PARALLEL TO DIRECTION OF WATER FLOW.
 - OVERLAP FABRIC SEAMS BY 18".
 - OVERLAP UNDERWATER FABRIC SEAMS BY 36".

RECORD PLANS	
CONTRACTOR: KUECHLE	
DATE: 08/26/15	
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				DATE 10/9/13 REG. NO. 48386

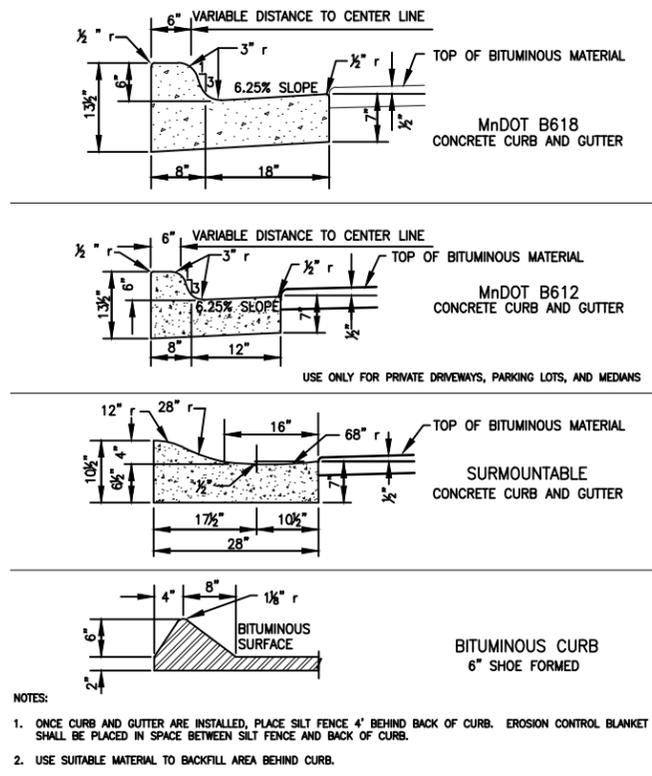
PRIME CONSULTANT

Wenck Associates, Inc.
Consulting Engineers
1800 PIONEER CREEK CENTER
MAPLE PLAIN, MN 55359

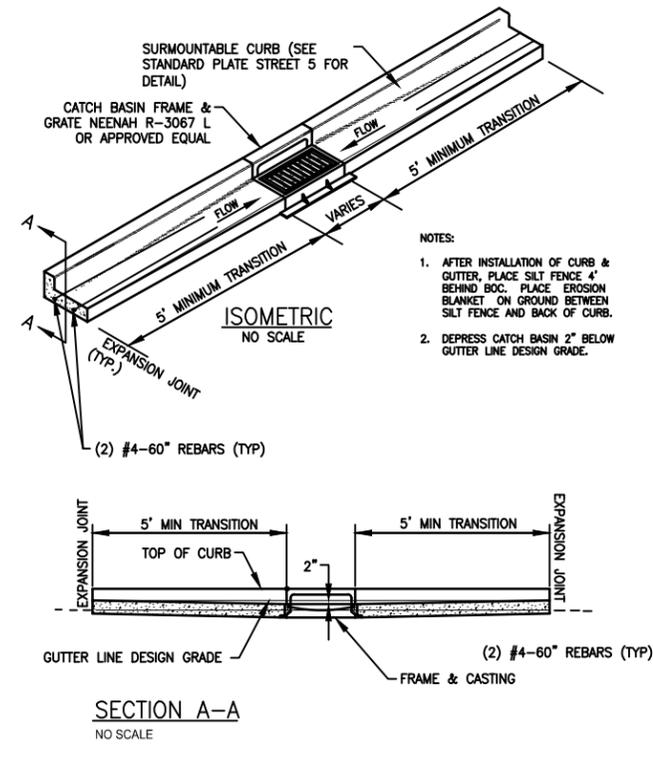
763-479-4200
763-479-4242

PROJECT TITLE	KIMBALL PHASE II STORMWATER IMPROVEMENTS
	CLEARWATER RIVER WATERSHED DISTRICT

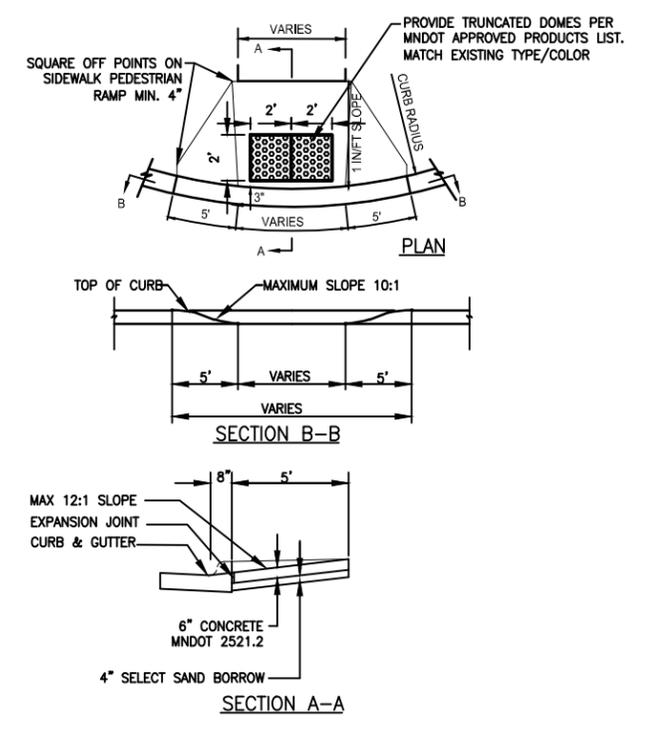
SHEET TITLE			DETAILS
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	AUG 2013
PROJECT NO.	SHEET NO.	SCALE	AS SHOWN
0002-200	C-801		B



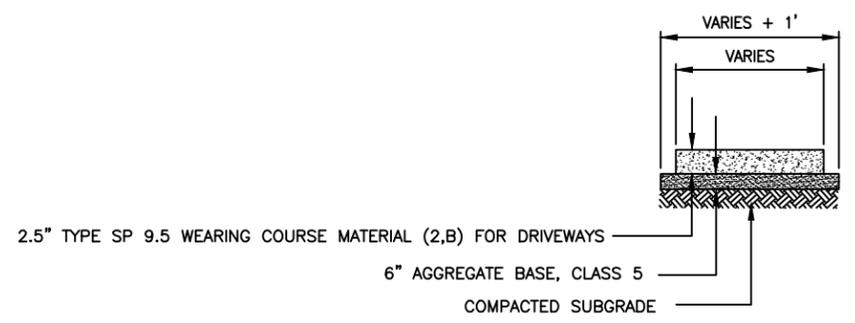
G CURB & GUTTER DETAIL



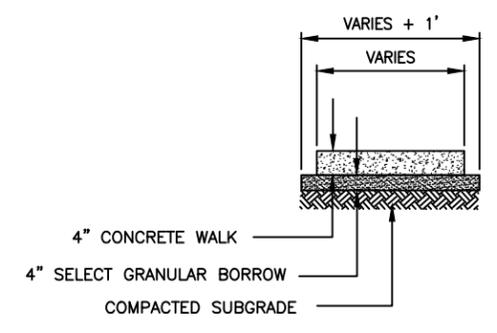
H CURB TRANSITION AT STORM INLET DETAIL



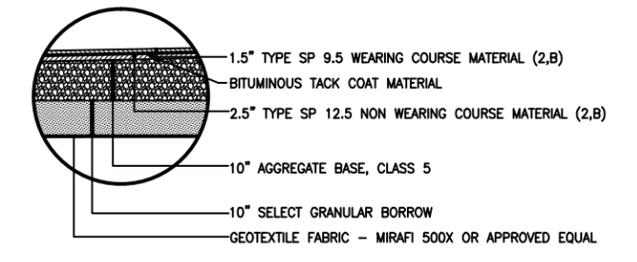
I PEDESTRIAN CURB RAMP DETAIL



J TYPICAL BITUMINOUS DRIVEWAY SECTION



K TYPICAL SIDEWALK SECTION



L TYPICAL STREET SECTION

RECORD PLANS	
CONTRACTOR:	KUECHLE
DATE:	08/26/15
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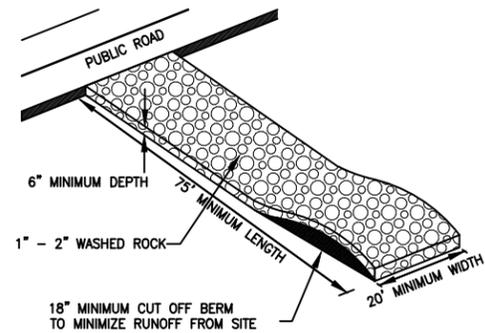
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A	ISSUED FOR REVIEW	KBM		8/26/13	

PRIME CONSULTANT

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1800 PIONEER CREEK CENTER
MAPLE PLAIN, MN 55359

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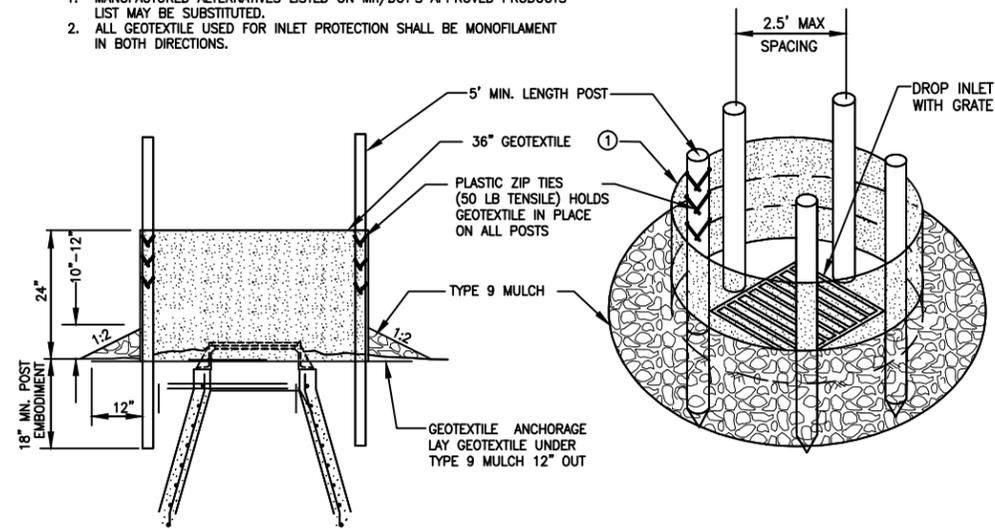
PROJECT TITLE	KIMBALL PHASE II STORMWATER IMPROVEMENTS		SHEET TITLE	DETAILS
	CLEARWATER RIVER WATERSHED DISTRICT		DWN BY	CHK'D
			KBM	RAK
			APP'D	DWG DATE
			KBM	AUG 2013
			SCALE	AS SHOWN
PROJECT NO.	SHEET NO.	REV NO.		
0002-200	C-802	B		



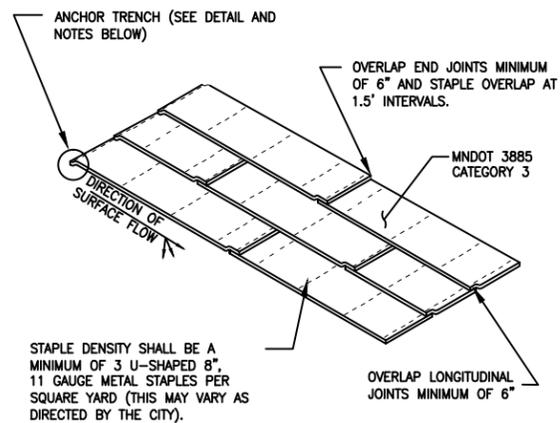
NOTE:
FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK.

M TEMPORARY CONSTRUCTION ENTRANCE DETAIL

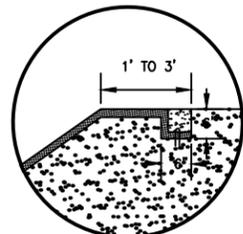
- NOTES:
1. MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.
 2. ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS.



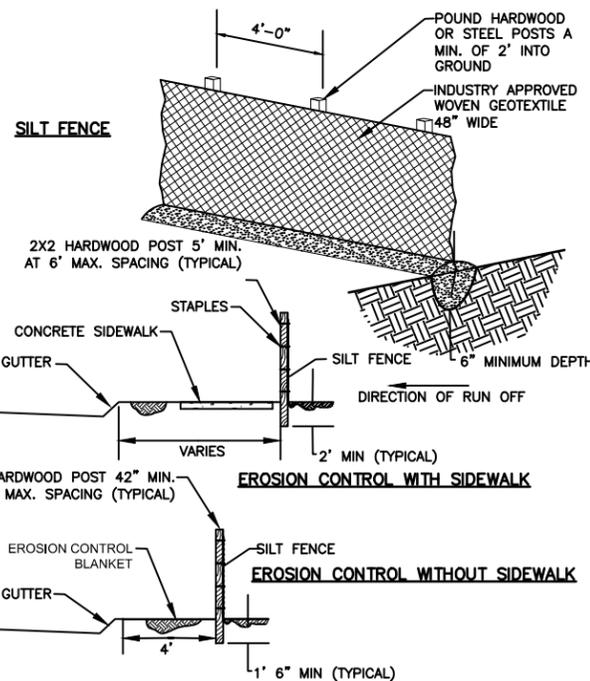
N INLET PROTECTION - EXPOSED SUBGRADE DETAIL



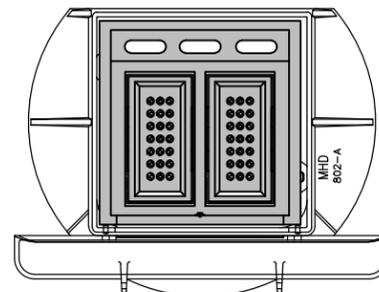
- ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
 2. LAY BLANKET IN TRENCH
 3. STAPLE AT 1.5' INTERVALS
 4. BACKFILL WITH NATURAL SOIL AND COMPACT
 5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



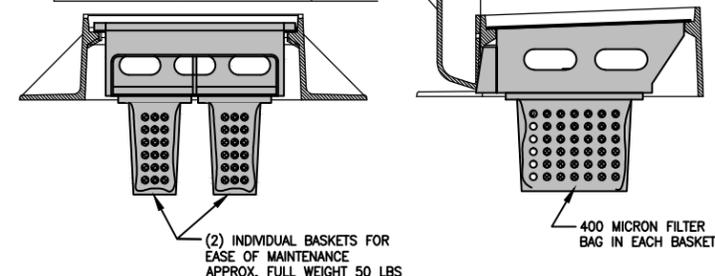
P EROSION CONTROL BLANKET DETAIL



Q SILT FENCE DETAIL



FILTER AREA	2.25 FT ²
OVERFLOW AREA	0.4 FT ²
MAXIMUM OVERFLOW RATE @ 2" HEAD	2.00 CFS
MAXIMUM OVERFLOW RATE @ 15" HEAD	1.00 CFS
BASKET WEIGHT (EMPTY)	1 LB
BASKET WEIGHT (FULL APPROX.)	50 LBS



O INLET PROTECTION - PAVEMENT DETAIL

GENERAL NOTES:

- 1.) DESIGNED FOR NEENAH R-3250-006 (MnDOT 802 or 805)
- 2.) BASKET DESIGN PROVIDES LARGER FILTER AREA AND EASY CLEANING, REDUCING OVERFLOW INSTANCES AND SEDIMENT LOAD ON THE SEWER SYSTEM
- 3.) FLOW RATES COMPARE TO OR EXCEED FLOW RATES OF COMMONLY USED GRATES
- 4.) PRODUCT DESIGN DOES NOT INTERFERE WITH LOAD BEARING CAPACITY OF FRAMES
- 5.) DURABLE ECOFRIENDLY HDPE IS UV RESISTANT AND PROVIDES A STRONG LIGHTWEIGHT PRODUCT THAT CAN BE EASILY RE-USED FOR THE NEXT PROJECT

RECORD PLANS

CONTRACTOR: KUECHLE
DATE: 08/26/15
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			DATE <u>10/9/13</u> REG. NO. <u>48386</u>

PRIME CONSULTANT

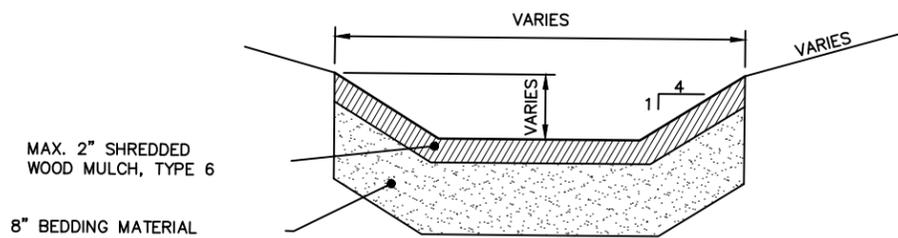
Wenck Associates, Inc.
1800 PIONEER CREEK CENTER
MAPLE PLAIN, MN 55359

763-479-4200
763-479-4242

PROJECT TITLE
**KIMBALL PHASE II
STORMWATER IMPROVEMENTS**

CLEARWATER RIVER
WATERSHED DISTRICT

SHEET TITLE DETAILS			
DWN BY KBM	CHK'D RAK	APP'D KBM	DWG DATE AUG 2013
PROJECT NO. 0002-200	SHEET NO. C-803	SCALE AS SHOWN	REV NO. B



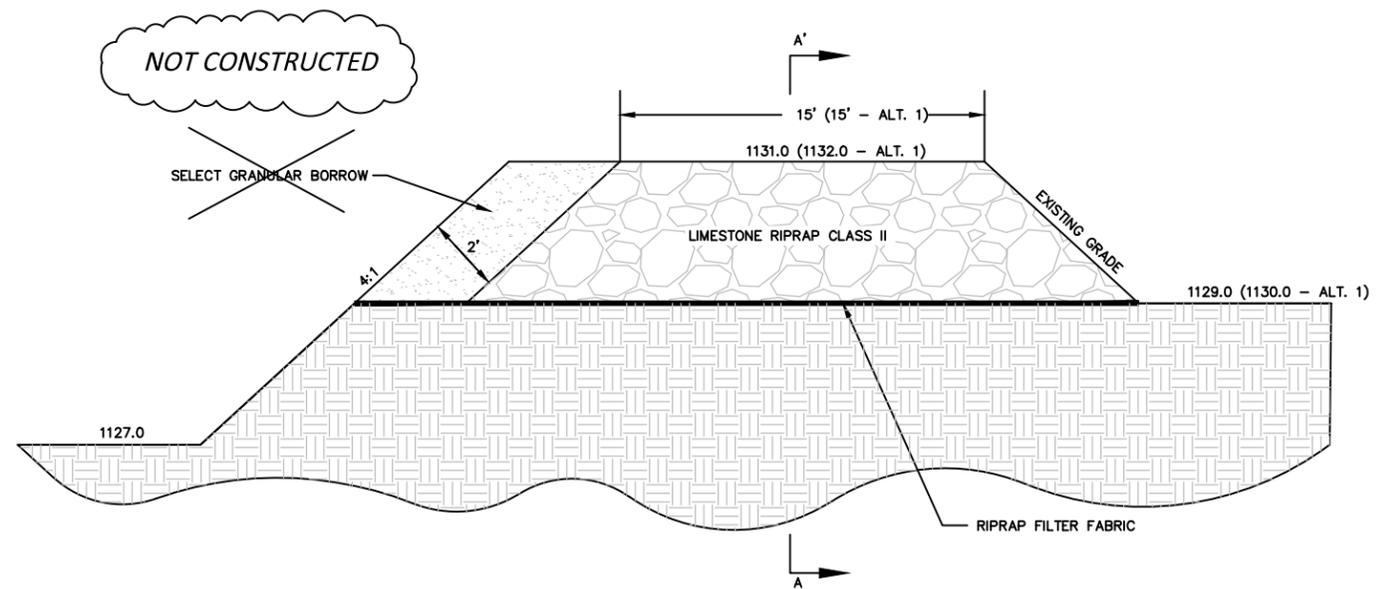
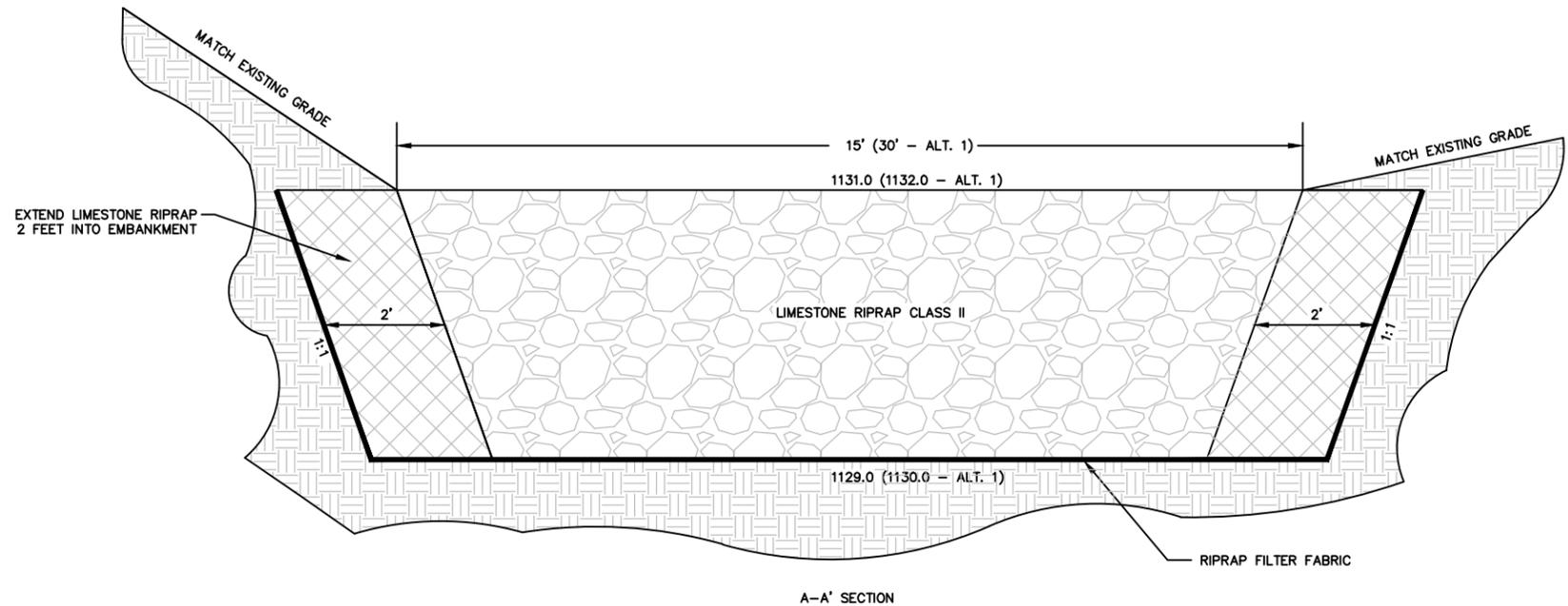
MAX. 2" SHREDDED WOOD MULCH, TYPE 6

8" BEDDING MATERIAL

NOTES:

- BEDDING MATERIAL FOR GARDEN: AREAS SHALL BE APPROXIMATELY 50% SALVAGED IN SITU TOPSOIL 50% CLEAN ORGANIC COMPOST (GRADE 2) IMPORTED TOPSOIL BORROW MAY NOT BE USED IN GARDEN AREAS
- AVOID COMPACTION OF NATIVE MATERIALS DURING CONSTRUCTION. SCARIFY NATIVE MATERIAL TO MITIGATE FOR EFFECTS OF COMPACTION.

R RAIN GARDEN DETAIL



S FILTRATION BERM DETAIL

SEWER SCHEDULE					
STRUCTURE	TYPE	DTL. PLATE	CASTING	DIA.	COMMENTS
MH-101	MH		R-1642 B	4'	
CB-101A	CB		R-3067 V	2'x3'	
CB-101B	CB		R-3067 V	2'x3'	
MH-102	MH		R-1642 B	4'	
CB-102A	CB		R-3067V	2'x3'	
CBMH-103	CBMH		R-3067 V	4'	
CBMH-104	CBMH		R-3067 V	4'	
CB-105	CB		R-3067 V	2'x3'	
FES-106				20"	
OCS-107			GRATE	20"	INSTALL "T-SECTION"
FES-108				36"	
FES-109				36"	W/TRASHGUARD
GC-110	MH		R-1642 B	8'	SAFL BAFFLE W/ 6' SUMP (CO #1)

RECORD PLANS

CONTRACTOR: KUECHLE
 DATE: 08/26/15
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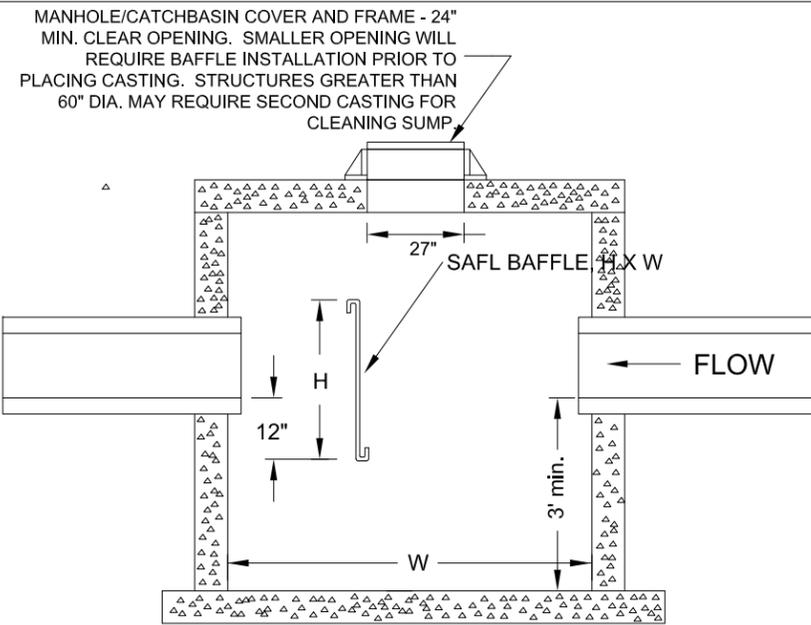
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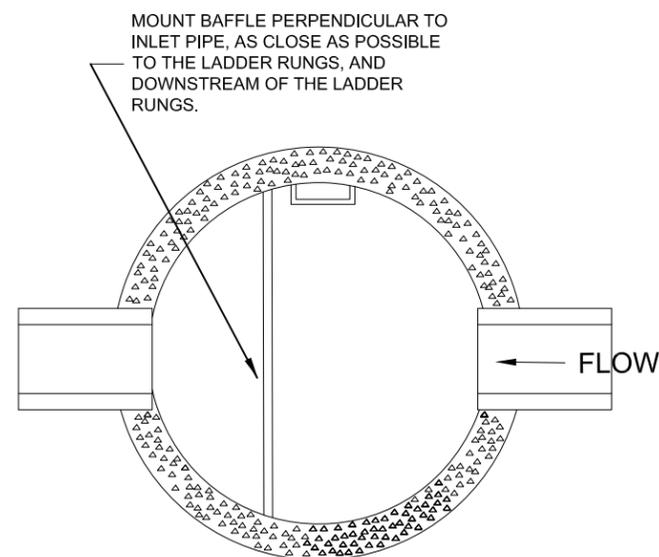
PROJECT TITLE
**KIMBALL PHASE II
 STORMWATER IMPROVEMENTS**
 CLEARWATER RIVER
 WATERSHED DISTRICT

SHEET TITLE			
DETAILS			
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KBM	RAK	KBM	AUG 2013
PROJECT NO.	SHEET NO.	SCALE	AS SHOWN
0002-200	C-804		
			REV NO.
			B



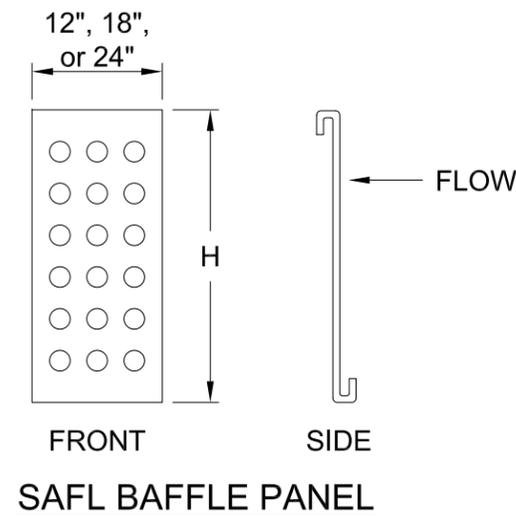
SAFL BAFFLE INSTALLATION

DETAIL (TYP)

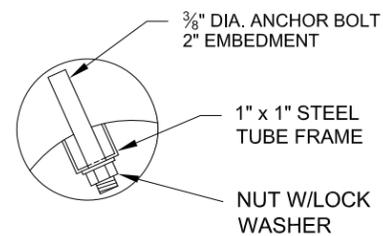


SAFL BAFFLE INSTALLATION

DETAIL (TYP)



SAFL BAFFLE PANEL

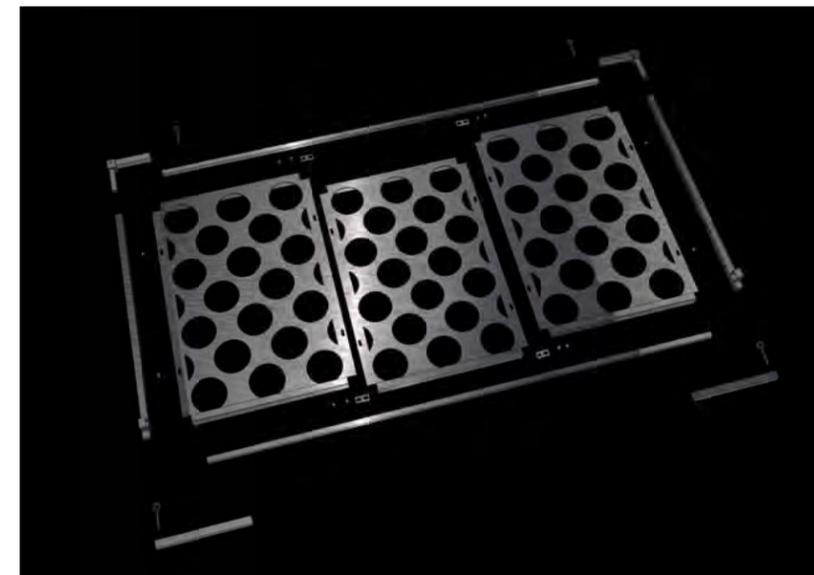


SAFL BAFFLE ATTACHMENT

BOLT DETAIL

NOTES:

- 1) CONTRACTOR MUST VERIFY LOCATION OF CASTING AND STEPS PRIOR TO INSTALLATION OF STRUCTURE.
- 2) THIS GENERIC DETAIL DOES NOT ENCOMPASS THE SIZING, FIT, AND APPLICABILITY OF THE SAFL BAFFLE FOR THIS SPECIFIC PROJECT. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE DESIGN IS IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. THE SAFL BAFFLE IS A PATENTED TECHNOLOGY OF THE UNIVERSITY OF MINNESOTA AND UPSTREAM TECHNOLOGIES, INC. NEITHER UPSTREAM TECHNOLOGIES NOR THE UNIVERSITY OF MINNESOTA APPROVES PLANS, SIZING, OR SYSTEM DESIGNS.



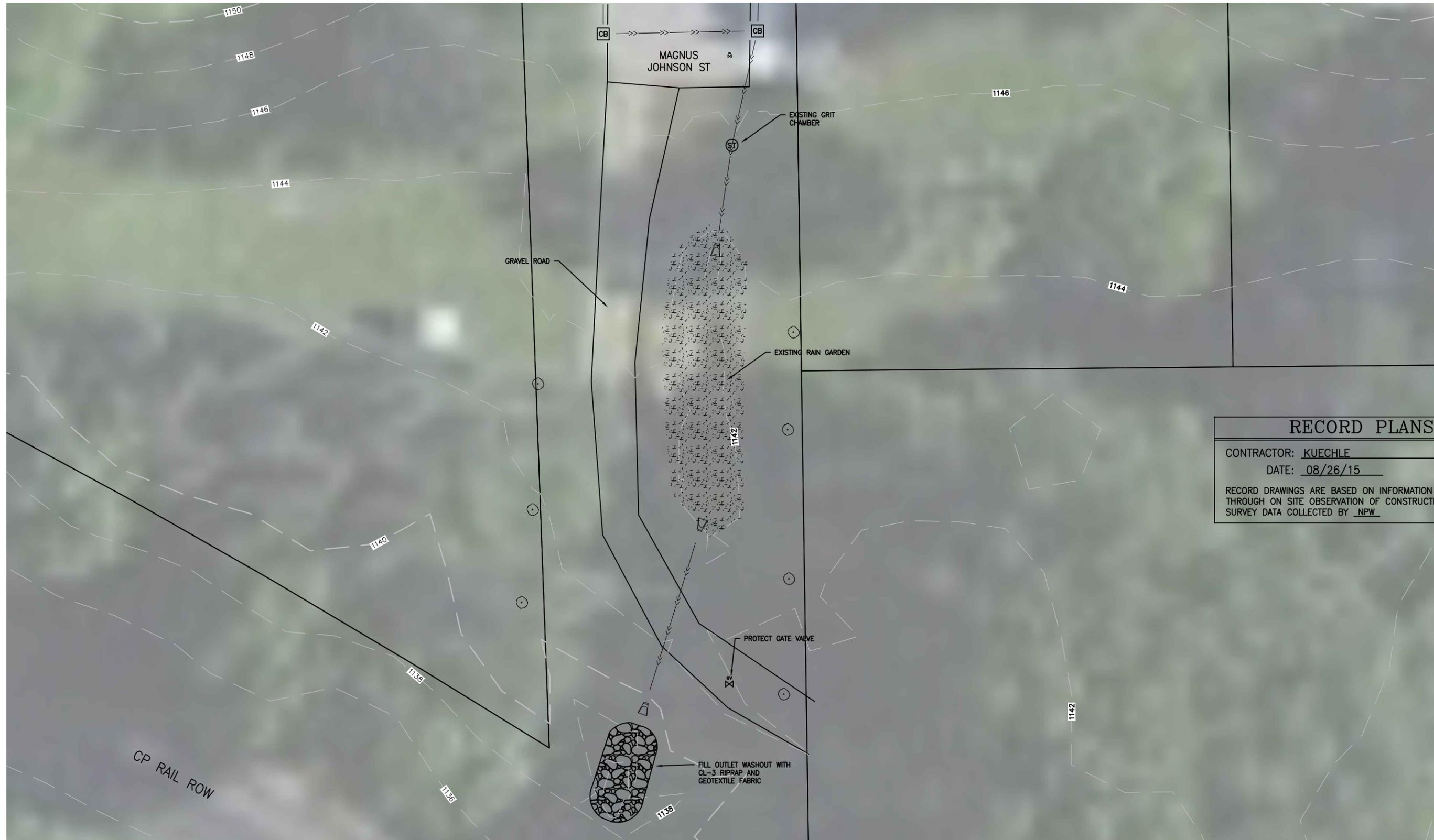
STRUCTURE NUMBER

SAFL Baffle Installation
 Structure Diameter (W) = 96 inches
 Rim Elevation = 1127.00 feet
 Inlet Pipe is 18" HDPE at Invert Elevation 1124.25 feet
 Outlet Pipe is 18" HDPE at Invert Elevation 1124.25 feet
 SAFL Baffle Bottom Elevation = 1123.25 feet

SAFL Baffle Width (W) = 96 inches
 SAFL Baffle Height (H) = 36 inches

Width of SAFL Baffle is adjustable from 86 to 96 inches





RECORD PLANS	
CONTRACTOR:	KUECHLE
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GENERAL NOTES

1. ALL QUANTITIES ARE APPROXIMATE AND MAY VARY TO ALLOW COMPLETION OF WORK.
2. PRIVATE UTILITIES ARE SHOWN IN GENERAL LOCATIONS. CONTRACTOR TO COORDINATE WITH PRIVATE UTILITY OWNERS PER GOPHER STATE ONE REQUIREMENTS.
3. CONTRACTOR SHOULD ANTICIPATE PRIVATE UTILITY SERVICES CONFLICTS THROUGHOUT THE PROJECT SUBCUT & TRENCH AREAS AND COORDINATE WITH PRIVATE UTILITY OWNERS.
4. NOTIFY ENGINEER IMMEDIATELY OF ALL EXISTING SEWER AND WATER SERVICE CONFLICTS.
5. CONTRACTOR TO STRIP & SALVAGE EXISTING TOPSOIL.
6. REVIEW ALL TREE REMOVALS WITH ENGINEER.
7. SALVAGE & REINSTALL STREET & TRAFFIC SIGNS AS REQUIRED.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE
A	ISSUED FOR REVIEW		KBM	

SEAL	
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	
KEVIN B. MATTSOON	
DATE 10/9/13	REG. NO. 48386

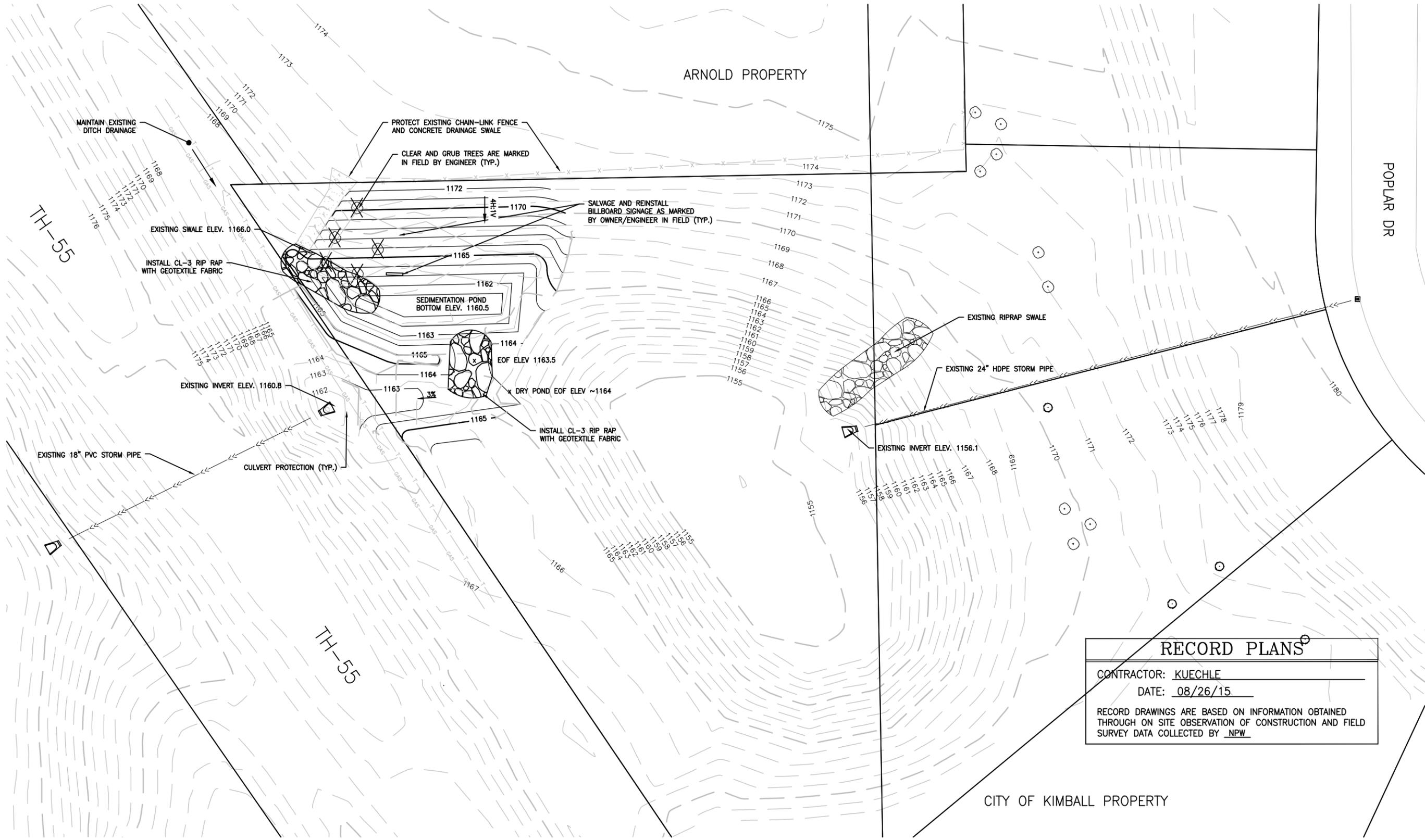
PRIME CONSULTANT

Wenck Associates, Inc.
1800 PIONEER CREEK CENTER
MAPLE PLAIN, MN 55359

763-479-4200
763-479-4242

PROJECT TITLE	KIMBALL PHASE II STORMWATER IMPROVEMENTS	
	CLEARWATER RIVER WATERSHED DISTRICT	

SHEET TITLE			
MAGNUS JOHNSON OUTLET STABILIZATION			
DWN BY	CHK'D	APP'D	DWG DATE
KBM	RAK	KBM	NOV 2014
PROJECT NO.		SCALE	
0002-200		AS SHOWN	
SHEET NO.		REV NO.	
C0-2		B	



Inspection Form (Blank)

BMP INSPECTION FORM

Project Name: _____ Owner: _____

Project Element: _____ Inspector: _____

Date: _____

Recent Precipitation: _____

REASON FOR INSPECTION

<input type="checkbox"/> Routine	<input type="checkbox"/> Response to Complaint	<input type="checkbox"/> Follow-up:
<input type="checkbox"/> Water Quality Storm	<input type="checkbox"/> Initial	<input type="checkbox"/> Other: _____

INSPECTION RESULTS

Item	Check all that apply	Note:
1	Apparent problemns	
2	Unauthorized modification	
3	BMP present	
4	Trash	
5	Erosion/ scouring	
6	Accumulated sediment	
7	Full vegetative cover	
8	Nuisance vegetation present	
9	Outlet clogged	
10	Flow	
11	Standing water	

FIELD NOTES:

CORRECTIVE ACTION NEEDED

Inspection Forms (Completed)



Responsive partner.
Exceptional outcomes.

Toll Free: 800-472-2232

Email: wenckmp@wenck.com

Web: wenck.com

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