US Army Corps of Engineers
Alaska District

ANCHORAGE
Regulatory Division (1145)
CEPOA-RD
Post Office Box 6898
JBER, Alaska 99506-0898

Public Notice of Application for Permit

PUBLIC NOTICE DATE:	**August 1, 2022**
EXPIRATION DATE:	**Augus 31, 2022**
REFERENCE NUMBER:	**POA-2009-00725**
WATERWAY:	**Wetlands Near Kobuk River**

Interested parties are hereby notified that a Department of the Army permit application has been received for work in waters of the United States as described below and shown on the enclosed project drawings.

All comments regarding this Public Notice should be sent to the address noted above. If you desire to submit your comments by email, you should send it to the Project Manager's email as listed below or to regpagemaster@usace.army.mil. All comments should include the Public Notice reference number listed above.

All comments should reach this office no later than the expiration date of this Public Notice to become part of the record and be considered in the decision. Please contact Mr. Swade Hammond at (907) 753-5556, toll free from within Alaska at (800) 478-2712 or by email at swade.d.hammond@usace.army.mil if further information is desired concerning this notice.

APPLICANT: Native Village of Shungnak

AGENT: Kuna Engineering, Rose Walker

LOCATION: The project site is located within Section 4, T. 17 N., R. 8 E., Latitude 66.902222º N., Longitude -157.120556º W.; Village of Shungnak, Alaska.

PURPOSE: The applicant's stated purpose is to replace the old community landfill with a new one for community expansion and to alleviate local concerns with the surrounding environment of the old landfill, that has been improperly managed, is overflowing and has a destroyed fence.

PROPOSED WORK: The project consists of 3 phases. Due to a lack of funding, Phase I was completed and Phases II and III were not constructed. The original authorization was issued on May 9, 2012, was modified on February 6, 2015, and expired in April of 2017. Due to the expiration of the previous permit, the applicant must request a new individual permit (IP) and this review will incorporate all aspects of the project within the Corps designated scope of review. This includes the cumulative impacts from Phase I and a review of both Phases II and III. The first phase resulted in 2.65 acres of impacts and the applicant purchased 3.98 acres of in-lieu fee credits from The Nature Conservancy. The current phase, Phase II, of the proposed project includes the construction of the landfill access road and would result in 6.59 acres of impact to emergent wetlands. Phase III would include 1.97 acres of impacts to emergent wetlands and would be for the construction of the landfill. In total, all three phases would impact 11.21 acres of emergent wetlands. The applicant previously proposed the purchase of 9.88 wetland credits for Phase II and 2.96 wetland credits for Phase III. All work would be performed in accordance with the enclosed plan sheets, provided with the application on June 13, 2022.

ADDITIONAL INFORMATION: The Bureau of Indian Affairs (BIA), is the lead federal agency on the project and has completed an Environmental Assessment (EA) for the proposed project. USACE has requested a copy of the EA to reference the document and avoid duplication of efforts under the National Environmental Policy Act (NEPA). Other authorizations identified on the application include Title 9 Land Use Permit, Storm Water Pollution Prevention Plan, and State Historic Preservation Office (SHPO) concurrence.

APPLICANT PROPOSED MITIGATION: The applicant indicated that the project was designed in a manner that would avoid and then minimize impacts to regulated Waters of the United States. As stated by the applicant "the proposed route is limited to a minimum impact to wetlands for construction of the Phase II road segment. The road does not cross over any rivers, streams, lakes or other larger bodies of water. The closest point on the road to the Kobuk River, the nearest larger body of water, is a distance of over 2,200 feet away and over 150 feet away from the nearest stream." The previously authorized mitigation would also be considered to offset impacts with the total purchase of 16.82 credits from The Nature Conservancy. This includes the previous purchase and receipt of 3.98 credits for phase I and the remainder of the project, phases II and III, originally proposed 9.88 credits and 2.96 credits respectively.

WATER QUALITY CERTIFICATION: A permit for the described work will not be issued until a certification or waiver of certification, as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the Alaska Department of Environmental Conservation.

CULTURAL RESOURCES: The lead Federal agency, BIA, is responsible for compliance with the requirements of Section 106 of the National Historic Preservation Act. The U.S. Army Corps of Engineers (Corps) will review BIA's documentation and either concur with their documentation or continue to work with them until any issues are resolved. A permit for the described work will not be issued until the Section 106 process has been completed and the Corps concurs with BIA's cultural resource documentation.

ENDANGERED SPECIES: The lead Federal agency, BIA, is responsible for compliance with the requirements of Section 7 of the Endangered Species Act. The U.S. Army Corps of Engineers (Corps) will review BIA's documentation and either concur with their documentation or continue to work with them until any issues are resolved. A permit for the described work will not be issued until the Section 7 process has been completed and the Corps concurs with BIA's Threatened and Endangered Species documentation.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

No EFH species are known to use the project area.

TRIBAL CONSULTATION: The Corps fully supports tribal self-governance and government-to-government relations between Federally recognized Tribes and the Federal government. Tribes with protected rights or resources that could be significantly affected by a proposed Federal action (e.g., a permit decision) have the right to consult with the Alaska District on a government-to-government basis. Views of each Tribe regarding protected rights and resources will be accorded due consideration in this process. This public notice serves as notification to the Tribes within the area potentially affected by the proposed work and invites their participation in the Federal decision-making process regarding the protected Tribal right or resource. Consultation may be initiated by the affected Tribe upon written request to the District Commander during the public comment period.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The outcome of the general balancing process would determine whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur. The decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among

those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(l) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria (see Sections 320.2 and 320.3), a permit will be granted unless the District Commander determines that it would be contrary to the public interest.

The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

AUTHORITY: This permit will be issued or denied under the following authorities:

(X) Discharge dredged or fill material into waters of the United States – Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, our public interest review will consider the guidelines set forth under Section 404(b) of the Clean Water Act (40 CFR 230).

Project drawings and a Notice of Application for State Water Quality Certification are enclosed with this Public Notice.

District Commander
U.S. Army, Corps

Enclosures

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 02-28-2022

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - James Middle - Last - Commack	First - Rose Middle - Last - Walker
Company - Native Village of Shungnak	Company - Kuna Engineering
E-mail Address - transportation@issingnak.org	E-mail Address - fwalker@kunaeng.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- P.O. Box 64	Address- 4300 B St., Suite 605
City - Shungnak State - AK Zip - 99773 Country - USA	City - Anchorage State - AK Zip - 99503 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax
907-437-2163 907-437-2183	907-707-7729 907-339-6555 907-339-5237

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Kuna Engineering to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

[signature] 13 Jun 22

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Shungnak Landfill Access Road Project

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Wetlands Impact	Address
15. LOCATION OF PROJECT	City - State- Zip-
Latitude: °N 66-54-08N Longitude: °W 157-07-14W	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality City of Shungnak

Section - 4 Township - 17N Range - 8E

17. DIRECTIONS TO THE SITE

Overall Project Location: The project is located in the village of Shungnak. It starts at the north end of the village and ends at the location of the new landfill, approximately 12,500 feet from the north end of the village (see Figure 1 - Project Location).
Phase 1 - Complete: began at Sta. 10+00 and ended at Sta. 65+00 (see Figure 2 - Site Plan).
Phase 2 - Current Phase: begins at Sta. 65+00 and ends at Sta. 135+00 (see Figure 2 - Site Plan).
Phase 3 - New Landfill Site (not in the current scope of this project): begins at Sta. 135+00 (See Figure 2 - Site Plan).

18. Nature of Activity (Description of project, include all features)

The Shungnak Landfill Access Road Project was previously split into three phases. Phase I was complete in the fall of 2015 for a section of the landfill road, approximately 5,400 feet of road. The project was placed on a brief hold due to limited funding after Phase I completion. Now that funding is available, Phase II of the project kicked-off in March of 2022. Phase II is the current project phase which includes the design and construction of the remaining landfill road, approximately 7,200 feet, before it reaches the New Landfill Site (Phase III). Phase III is not in the current scope of this project and will begin design and construction once funding is available. Approximately 35,000 cy of gravel was used for Phase I of the project. Phase II estimates needing 35,440 cy of gravel material to construct. The material will be mined from a private gravel pit known as the Harry Commack Jr Gravel Pit (see narrative for more information).

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The current landfill in Shungnak is old and rundown and needs to be replaced to allow for community expansion. Other issues with the landfill include, improperly managed, overflowing, fence is destroyed, and residents are concerned with the environment around the current landfill. Phase I and II of the Shungnak landfill Access Road Project is the design and construction of the road that will provide access to the new landfill site.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Phase II of the project includes a total of 35, 440 cy of gravel material for the remaining length of the road to provide community access to the new landfill site where a new landfill will be constructed as part Phase III. Approximately 6.59 acres of wetlands will be impacted along this segment of road. The alignment proposed was the most feasible and impacted the least amount of wetlands. They carefully located the new location of the proposed landfill site so as to benefit the community the most with the least amount of impact to the people and the environment.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
Gravel = 35,440 cy		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres
or
Linear Feet

Phase I - 2.65 acres of wetlands was impacted
Phase II - 6.59 acres of wetlands will be impacted.
Phase III - 1.97 acres of wetlands will be impacted
Total Project: 11.21 acres of wetlands impacted.

23. Description of Avoidance, Minimization, and Compensation (see instructions)

The proposed route is limited to a minimum impact to wetlands for construction of the Phase II road segment. The road does not cross over any rivers, streams, lakes or other larger bodies of water. The closest point on the road to the Kobuk river, the nearest larger body of water, is a distance of over 2,200 feet away and over 150 feet away from the nearest stream.

24. Is Any Portion of the Work Already Complete? ☑ Yes ☐ No IF YES, DESCRIBE THE COMPLETED WORK

The project was previously split up into three phases, Phase I was complete in the fall of 2015 and included approximately 5,400 feet of new road. The project was not able to complete the remaining road segment (Phase II) due to the limited amount of funding provided for the project. Now that funding is available, the Shungnak Tribal Council has decide to complete Phase II. Phase III will begin once funding is available.

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- NANA Regional Corporation
909 W 9th Ave. #202

City - Anchorage State - Alaska Zip - 99501

b. Address- Native Allotments

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
NWAB	Title 9 Land Use Permit				
ADEC	Section 401 Water Quality Certification				
ADEC	SWPPP				
ADNR	SHPO Authrization				

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
			06/13/22

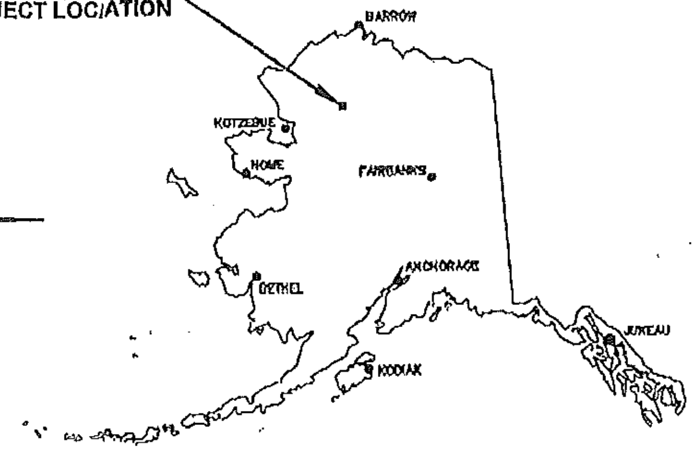
The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

REVISIONS			STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
No.	DATE	DESCRIPTION	ALASKA	524412	2011	A1	A5

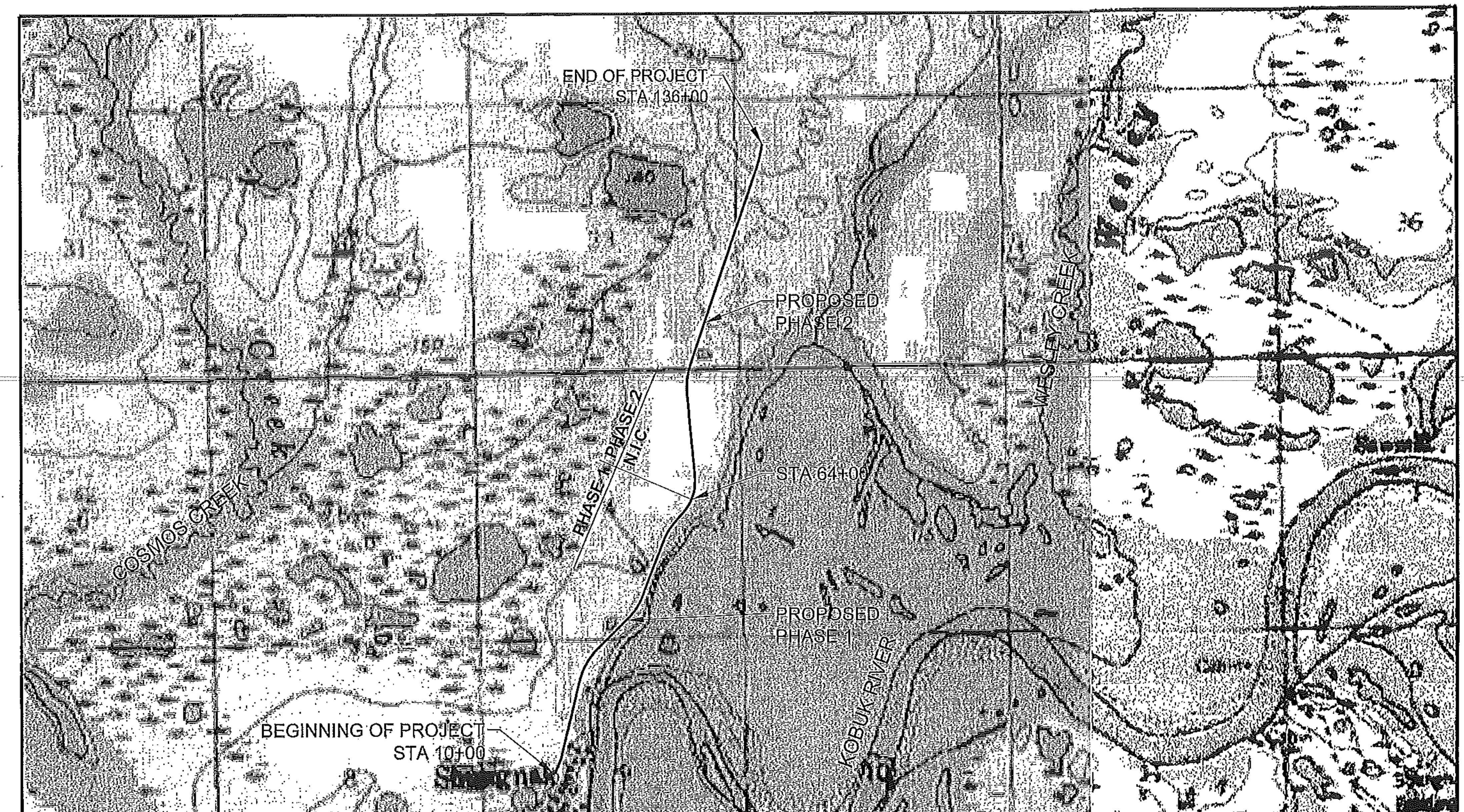
NATIVE VILLAGE OF SHUNGNAK

SHUNGNAK TRIBAL COUNCIL
PROPOSED LANDFILL ROAD : BIA ROUTE 1003



INDEX	
SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LEGEND
A3	SHEET LAYOUT
A4–A5	SURVEY CONTROL SHEET
B1–B2	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES
D1	SUMMARY TABLES
E1–E2	DETAIL SHEETS
F1–F11	PLAN AND PROFILE SHEETS
Q1–Q6	ESCP SHEETS
R1–R8	RIGHT OF WAY PLANS

THE FOLLOWING ADOT&PF STANDARD DRAWINGS APPLY TO THIS PROJECT:
D-01.02, D-04.21, D-14.10
S-00.10, S-05.01, S-20.10, S-30.03



PROJECT SUMMARY		
SEGMENT	LENGTH	WIDTH
SHUNGNAK	12,600 FT	15'

DESIGN DESIGNATION	
CEMETERY ROAD	
A.D.T. 2010	<400
A.D.T. 2020	<400
A.D.T. 2030	<400
DESIGN SPEED (mi/hr)	30
TRUCKS	0.0%

FINAL PS & E: 16 DECEMBER 2011
PLANS DEVELOPED BY: WHPacific INC.

STATE OF ALASKA

APPROVED:

12/21/11

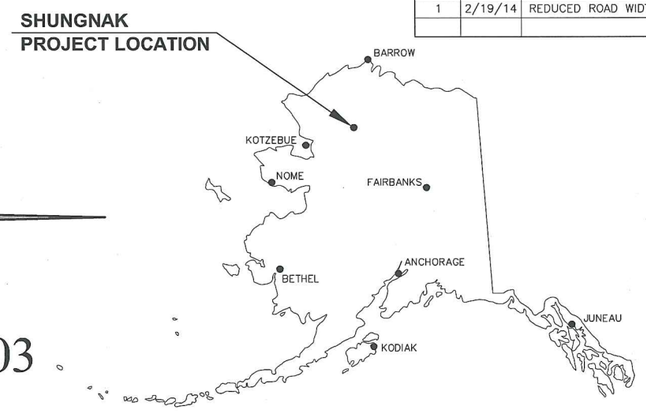
NAME — DATE
TRIBAL CHIEF
SHUNGNAK TRADITIONAL COUNCIL

[DATE: 12/15/2011 3:25 PM] [AUTHOR: jhanson] [PLOTTER: \\anc-ad1\Ricoh3600] [STYLE: WHP-Standard.ctb]
[PATH: P:\Maniilaq Association\524412\Design\Drawings\Civil\524412-C-A1 Title Sheet.dwg] [LAYOUT: 524412-C-A1 - Title Sheet]

REVISIONS			STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
NO.	DATE	DESCRIPTION	ALASKA	524412	2011	A1	A5
1	2/19/14	REDUCED ROAD WIDTH					

NATIVE VILLAGE OF SHUNGNAK

SHUNGNAK TRIBAL COUNCIL
PROPOSED LANDFILL ROAD : BIA ROUTE 1003



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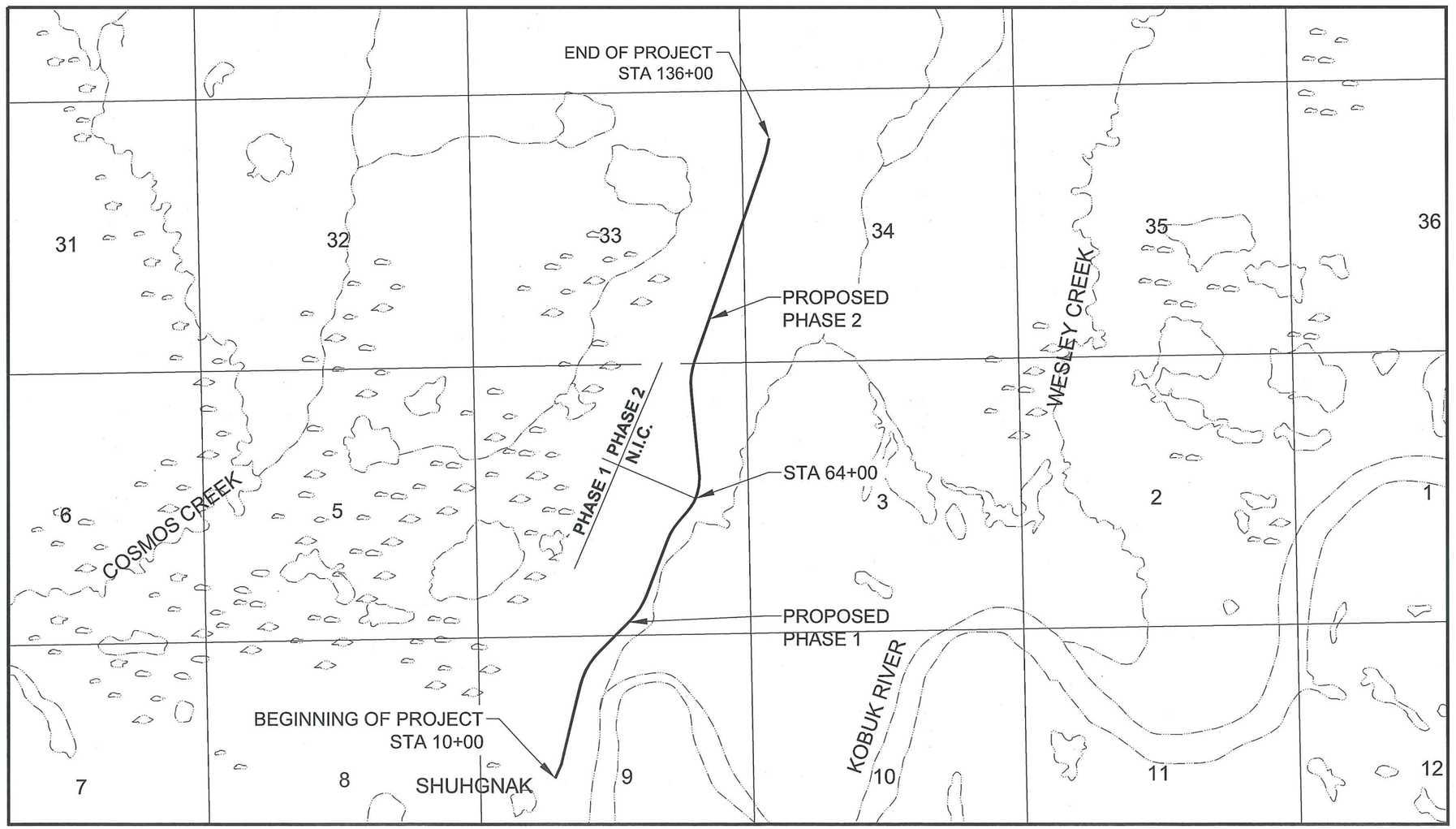
S-00.10, S-05.01, S-20.10, S-30.03



PROJECT SUMMARY			
SEGMENT	LENGTH	WIDTH	
SHUNGNAK	12,600 FT	13'	1

DESIGN DESIGNATION	
CEMETERY ROAD	
A.D.T. 2010	<400
A.D.T. 2020	<400
A.D.T. 2030	<400
DESIGN SPEED (mi/hr)	30
TRUCKS	0.0%

FINAL PS & E
PLANS DEVELOPED BY: WHPacific INC.

STATE OF ALASKA 49 TH
Andrea K. Morton
No. CE 9002
REGISTERED PROFESSIONAL ENGINEER
2/25/14

STATE OF ALASKA 49 TH
Julia R. Hanson
No. CE 13144
REGISTERED PROFESSIONAL ENGINEER
2/25/14

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LEGEND:

	RECOVERED	TO BE SET THIS PROJECT
GOV'T SECTION CORNER	6 5 7 8 Sec. Cor.	
GOV'T 1/4 SECTION CORNER	5 6 1/4 Cor.	
GOV'T 1/16 SECTION CORNER	1/16 Cor.	
GOV'T SURVEY MONUMENT		
GOV'T CONTROL STA.		
PRIMARY MON. [BRASS/AL CAP]		
SECONDARY CORNER		
PRIMARY CENTERLINE MONUMENT		
SECONDARY CENTERLINE MONUMENT		
SURVEY CONTROL POINT	CP	
SECONDARY SURVEY CONT. POINT	SCP	
GPS CONTROL POINT	GPS	
BENCH MARK	BM	
TEMPORARY BENCH MARK	TBM	
ROCK MONUMENT		
WHPACIFIC FIELD MARKER	WHP-1 X	
TOWNSHIP & RANGE LINE	T. 13 N. / T. 12 N. — R. 3 W. / R. 2 W.	
SECTION LINE		
EXISTING EASEMENT LINE		
TEMPORARY CONSTRUCTION EASEMENT LINE		
EXIST. PROPERTY LINE		
PROPOSED RIGHT OF WAY LINE		
PROJECT CENTERLINE	27+00	
LIMIT OF CUT SLOPE		
LIMIT OF FILL SLOPE		
PROPOSED DITCH		
PROPOSED ROADWAY		
EXISTING ROADWAY		
CHAIN LINK FENCE		
SILT FENCE		
DRAINAGE PATH		
SIGN POST ASSEMBLY		
PIPE CULVERT w/ END SECT.	EXISTING	PROPOSED

ABBREVIATIONS:

A.D.	ALGEBRAIC DIFFERENCE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL, ℄	CENTERLINE
△	DEFLECTION ANGLE BETWEEN TANGENTS
E	EASTING
ELEV	ELEVATION
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EXIST.	EXISTING
FT	FEET
H	HORIZONTAL
IN	INCHES
INT	INTERSECTION
K	LENGTH OF VERTICAL CURVE PER PERCENT GRADE
L	LENGTH
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTHING
NC	NORMAL CROWN
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION (HORIZONTAL CURVE)
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RT	RIGHT
S	SUPERELEVATION RATE
SHLD	SHOULDER
STA	STATION
T, TAN	TANGENT
TYP	TYPICAL
V	VERTICAL
VC	VERTICAL CURVE

BUBBLE LEGEND:

- L FT / DIA (1) — PIPE INSTALLATION SEE SUMMARY SHEETS
- 1 — SIGN SEE SUMMARY SHEETS
- (1) — TEMPORARY CONSTRUCTION EASEMENT SEE SUMMARY SHEETS

GENERAL NOTES:

1. EXCEPT WHERE SPECIFICALLY NOTED, ALL CONSTRUCTION SHALL CONFORM TO THE 2004 ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, AND THE SPECIAL CONTRACT REQUIREMENTS. ALL DIMENSIONS ARE IN ENGLISH UNITS UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR WILL PERFORM ALL WORK FROM WITHIN THE RIGHTS-OF-WAY SHOWN ON THE DRAWINGS. THE CONTRACTING OFFICER MAY ALLOW THE USE OF ADDITIONAL CONSTRUCTION EASEMENTS BASED ON REVIEW OF DOCUMENTATION PROVIDED BY THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROPERTY DAMAGE RESULTING FROM ACTIVITIES OUTSIDE THE RIGHTS-OF-WAY AND APPROVED EASEMENTS.
3. THERE ARE NO KNOWN UTILITIES LOCATED WITHIN THE PROPOSED ROAD CORRIDOR.

WHPacific
300 West 31st Avenue
Anchorage, AK 99503
907-339-6500 Fax 907-339-6327
www.whpacific.com

STATE OF ALASKA 49TH
Eric L Mlyestrand
CE-7432
12/15/11
REGISTERED PROFESSIONAL ENGINEER

REVISIONS NO.	BY	DATE	REMARKS

SHEET INFO		
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	12/15/2011
LAST EDIT	12/15/2011	
PLOT DATE	12/15/2011	
SUBMITTAL		

LEGEND AND GENERAL NOTES

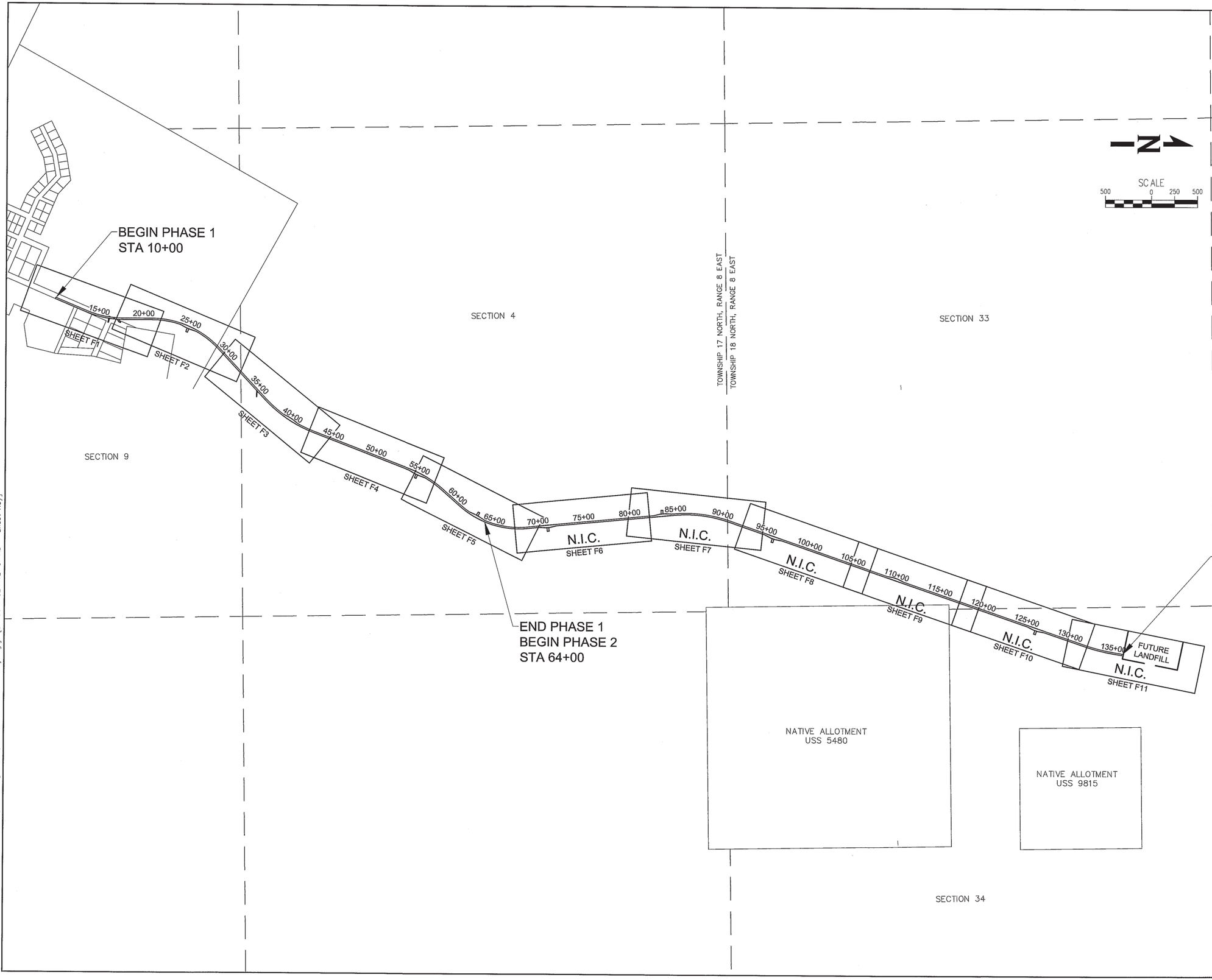
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE NTS

PROJECT NUMBER 524412
DRAWING FILE NAME 524412-C-A2 LEGEND & NOTES

SHEET NUMBER
A2
2 of 5

[DATE: 12/15/2011 3:25 PM] [AUTHOR: jhanson] [PLOTTER: \\anc-sd1\Ricoh3600] [STYLE: WHP-Standard.ctb]
[PATH: P:\Manilaq Association\524412\Design\Drawings\Civil\524412-C-A2 Legend & Notes.dwg] [LAYOUT: 524412-C-A2 - Legend & Notes]



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[PATH: P:\Manilaq Association\524412\Design\Drawings\Civil\524412-C-A3 Sheet Keydwg] [LAYOUT: 524412-C-A3 - Sheet Key]

WHPacific
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STATE OF ALASKA
49 TH
Eric L Myashiro
CE-7432
12/16/11
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	12/15/2011	
PLOT DATE	12/15/2011	
SUBMITTAL		

SHEET LAYOUT KEY

MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=500'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-A3 SHEET KEY

SHEET NUMBER
A3
3 of 5

XREF INDEX:

AREA COORDINATE SYSTEM - SHUNGNAK LANDFILL ROAD

HORIZONTAL CONTROL

THE PROJECT COORDINATE SYSTEM IS A LOCAL SURFACE GRID COORDINATE SYSTEM IN US SURVEY FEET.

THE BASIS OF COORDINATES IS A SET 3–1/4" ALUMINUM CAP ON A 2–1/2" ALUMINUM POST 0.5' BELOW GRADE STAMPED WITH THE FOLLOWING: "WHPACIFIC, SLR–1, 9235–S, 2011". THE GEODETIC POSITION OF SAID MONUMENT WAS ESTABLISHED BY AVERAGING THE OPUS VALUES OF FOUR INDEPENDENT 4 TO 9–HOUR STATIC GPS OBSERVATIONS. THE OPUS SOLUTIONS WERE BASED ON NGS CORS GPS STATIONS: KOTZEBUE WAAS CORS ARP (OTZ1), PID DK4099, BUCKLAND AK2007 CORS ARP (AC07), PID DL6684, KOTZEBUE_AK2007 CORS ARP (AB18), PID DL6675, KOBUK VALLAK20047 (AB27), PID DL,6435. SAID BASIS OF COORDINATES HAS THE FOLLOWING COORDINATES:

NAD83(2011)(EPOCH 2010.0000) GEODETIC COORDINATES (AVERAGED POSITION):
LAT.= 66 DEGREES 53 MINUTES 36.52302 SECONDS NORTH,
LONG.= 157 DEGREES 08 MINUTES 11.19424 SECONDS WEST,
ELLIPSOID HEIGHT = 168.95 US FEET
ORTHOMETRIC HEIGHT = 153.71 US FEET (NAVD88/GEOID09)

NAD83(2011)(EPOCH 2010.0000) ASPC ZONE 6 COORDINATES (PER OPUS REPORT):
4,713,497.7690 N, 1,764,524.7901 E, US Feet

PROJECT LOCAL COORDINATES: 50,000.0000 N, 70,000.0000 E, US Feet;

CONVERSION FROM ALASKA STATE PLANE ZONE 6, NAD83(2011)(EPOCH 2010.0000) US FEET TO LOCAL US FEET:

1. SCALE STATE PLANE COORDINATES USING 100000000/99990945 (Base point 0,0)
2. TRANSLATE RESULTING COORDINATES USING:
   −4,663,924.61487 N, −1,694,684.58229 E

CONVERSION FROM LOCAL US FEET TO STATE PLANE, ZONE 6, NAD83(2011)(EPOCH 2010.0000) US FEET:

1. TRANSLATE RESULTING COORDINATES USING:
   +4,663,924.61487 N, +1,694,684.58229 E
2. SCALE RESULTING COORDINATES USING 0.99990945 (Base point 0,0)

THE BEARINGS FOR THIS PROJECT ARE ALASKA STATE PLANE ZONE 6 GRID BEARINGS BASED UPON GPS OBSERVATIONS.

VERTICAL CONTROL

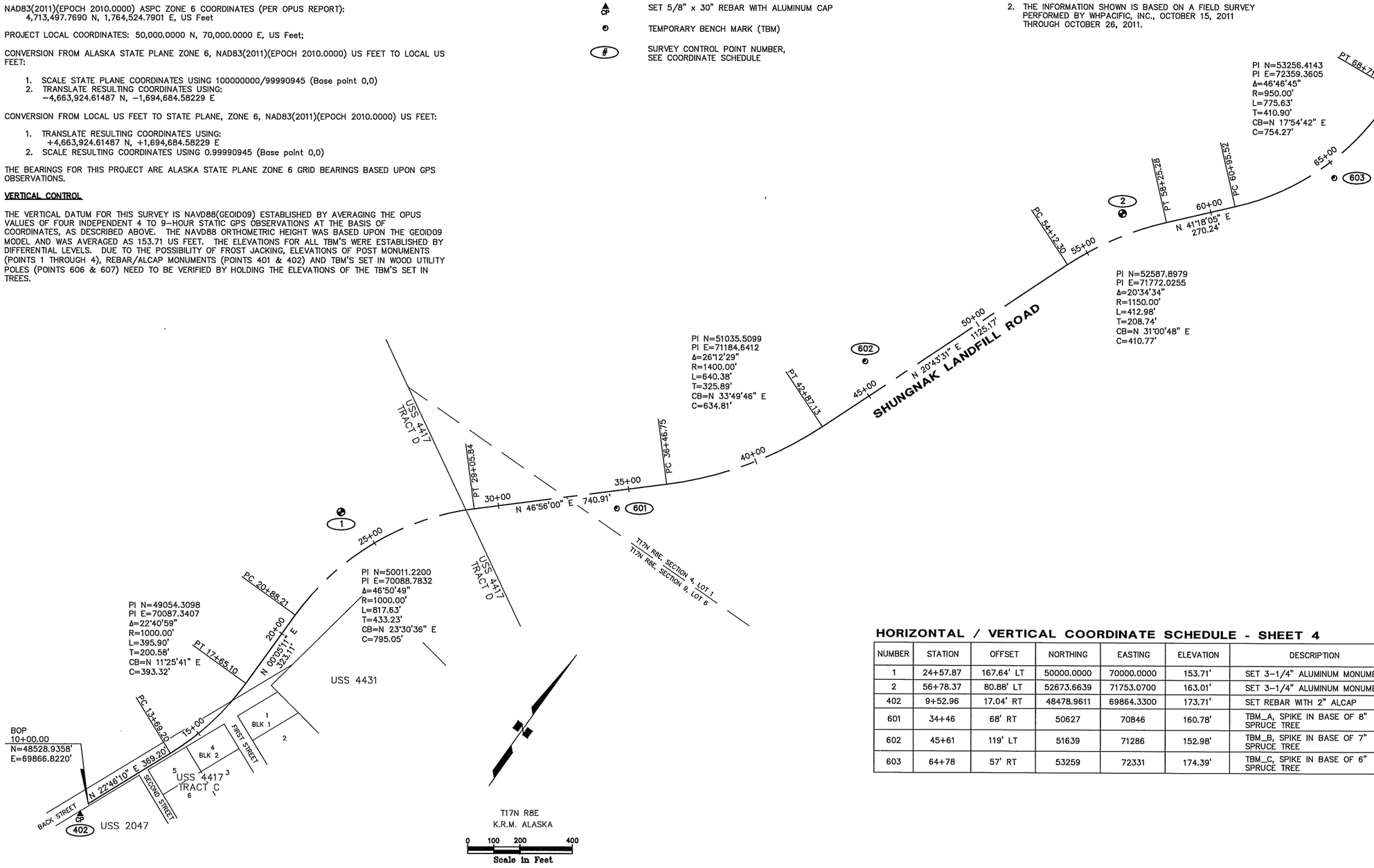
THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88(GEOID09) ESTABLISHED BY AVERAGING THE OPUS VALUES OF FOUR INDEPENDENT 4 TO 9–HOUR STATIC GPS OBSERVATIONS AT THE BASIS OF COORDINATES, AS DESCRIBED ABOVE. THE NAVD88 ORTHOMETRIC HEIGHT WAS BASED UPON THE GEOID09 MODEL AND WAS AVERAGED AS 153.71 US FEET. THE ELEVATIONS FOR ALL TBM'S WERE ESTABLISHED BY DIFFERENTIAL LEVELS. DUE TO THE POSSIBILITY OF FROST JACKING, ELEVATIONS OF POST MONUMENTS (POINTS 1 THROUGH 4), REBAR/ALCAP MONUMENTS (POINTS 401 & 402) AND TBM'S SET IN WOOD UTILITY POLES (POINTS 606 & 607) NEED TO BE VERIFIED BY HOLDING THE ELEVATIONS OF THE TBM'S SET IN TREES.

LEGEND

- SET 3–1/4" ALUMINUM CAP MONUMENT
- SET 5/8" x 30" REBAR WITH ALUMINUM CAP
- TEMPORARY BENCH MARK (TBM)
- (#) SURVEY CONTROL POINT NUMBER, SEE COORDINATE SCHEDULE

GENERAL NOTES

1. THIS SURVEY DOES NOT CONSTITUTE A SUBDIVISION AS DEFINED BY A.S. 40.15.900(5A).
2. THE INFORMATION SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY WHPACIFIC, INC., OCTOBER 15, 2011 THROUGH OCTOBER 26, 2011.



HORIZONTAL / VERTICAL COORDINATE SCHEDULE - SHEET 4

NUMBER	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	24+57.87	167.64' LT	50000.0000	70000.0000	153.71'	SET 3–1/4" ALUMINUM MONUMENT
2	56+78.37	80.88' LT	52673.6639	71753.0700	163.01'	SET 3–1/4" ALUMINUM MONUMENT
402	9+52.96	17.04' RT	48478.9611	69864.3300	173.71'	SET REBAR WITH 2" ALCAP
601	34+46	68' RT	50627	70846	160.78'	TBM_A, SPIKE IN BASE OF 8" SPRUCE TREE
602	45+61	119' LT	51639	71286	152.98'	TBM_B, SPIKE IN BASE OF 7" SPRUCE TREE
603	64+78	57' RT	53259	72331	174.39'	TBM_C, SPIKE IN BASE OF 6" SPRUCE TREE

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STATE OF ALASKA
TALLAS D. MAKKESTAD
No. LS-9235
REGISTERED PROFESSIONAL LAND SURVEYOR

REVISIONS			
NO.	BY	DATE	REMARKS

SHEET INFO		
SURVEYED	WHP	
DRAWN	CAW	
CHECKED	TDM	
APPROVED	TDM	12/21/2011
LAST EDIT		12/21/2011
PLOT DATE		
SUBMITTAL		

SURVEY CONTROL
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

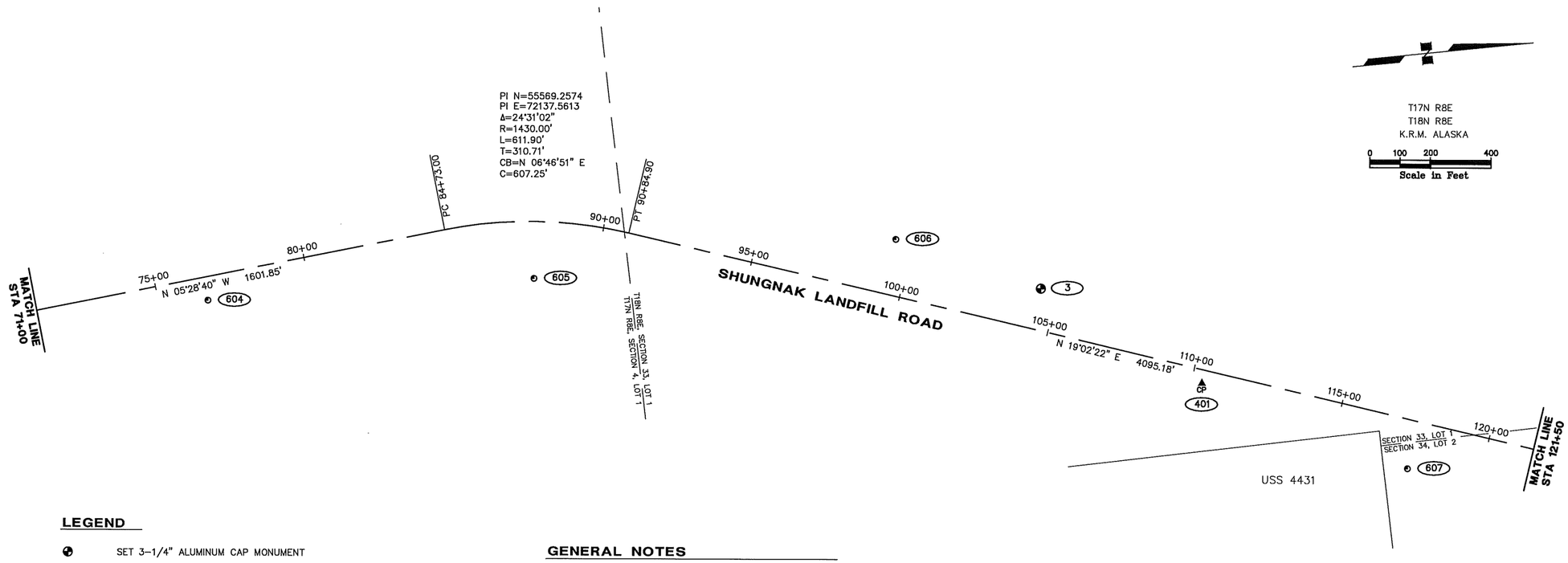
SCALE 1" = 200'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-A4-SURVEY CONTROL

SHEET NUMBER
A4
4 of 5

XREF INDEX:

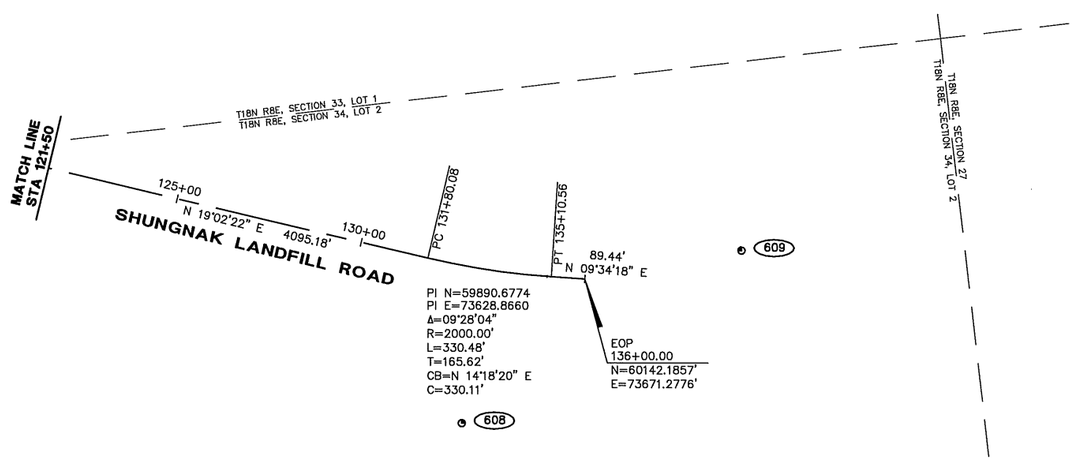


LEGEND

- SET 3–1/4" ALUMINUM CAP MONUMENT
- CP SET 5/8" x 30" REBAR WITH ALUMINUM CAP
- TEMPORARY BENCH MARK (TBM)
- (#) SURVEY CONTROL POINT NUMBER, SEE COORDINATE SCHEDULE

GENERAL NOTES

1. THIS SURVEY DOES NOT CONSTITUTE A SUBDIVISION AS DEFINED BY A.S. 40.15.900(5A).
2. THE INFORMATION SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY WHPACIFIC, INC., OCTOBER 15, 2011 THROUGH OCTOBER 26, 2011.



HORIZONTAL / VERTICAL COORDINATE SCHEDULE - SHEET 5

NUMBER	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	104+44.81	135.56' LT	57192.7086	72554.4000	210.43'	SET 3–1/4" ALUMINUM MONUMENT
4	153+24.53	22.63' RT	61838.9439	73980.3500	219.53'	SET 3–1/4" ALUMINUM MONUMENT
401	110+34.98	43.92' RT	57692.0386	72916.5900	212.64'	SET REBAR WITH 2" ALCAP
604	76+62	77' RT	54460	72321	178.18'	TBM_D, SPIKE IN BASE OF 8" SPRUCE TREE
605	87+73	188' RT	55538	72357	183.94'	TBM_E, SPIKE IN BASE OF 7" SPRUCE TREE
606	99+46	189' LT	56738	72341	191.33'	TBM_F, SPIKE IN BASE OF WOOD UTILITY POLE
607	117+63	164' RT	58341	73267	196.15'	TBM_G, SPIKE IN BASE OF WOOD UTILITY POLE
608	133+36	412' RT	59779	74018	184.26'	TBM_H, SPIKE IN BASE OF 10" SPRUCE TREE
609	140+08	103' LT	60561	73638	218.37'	TBM_I, SPIKE IN BASE OF 5" SPRUCE TREE

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STATE OF ALASKA
49th
TALLAK D. MAKKESTAD
No. LS-9235
12/21/2011
REGISTERED PROFESSIONAL LAND SURVEYOR

REVISIONS			
NO.	BY	DATE	REMARKS

SHEET INFO		
SURVEYED	WHP	
DRAWN	CAW	
CHECKED	TDM	
APPROVED	TDM	12/21/2011
LAST EDIT	12/21/2011	
PLOT DATE	12/21/2011	
SUBMITTAL		

SURVEY CONTROL

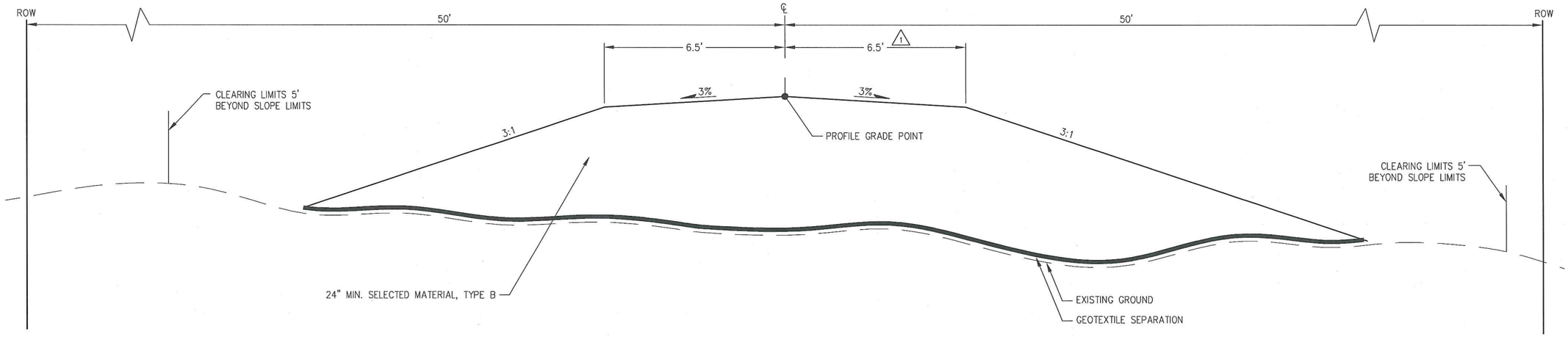
MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1" = 200'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-A4-SURVEY CONTROL

SHEET NUMBER
A5
5 of 5

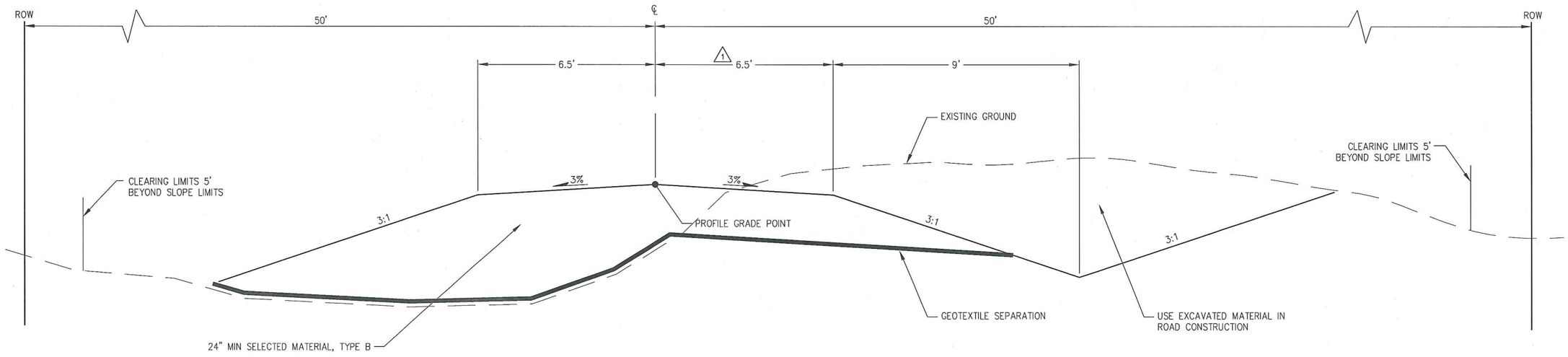


LANDFILL ROAD FILL SECTION

STA 15+00 TO STA 64+00
N.I.C. ~~STA 64+00 TO STA 99+25~~
N.I.C. ~~STA 113+75 TO STA 136+00~~

NOTES:

1. END DUMP AN INITIAL 18" LIFT OF LOOSE GRAVEL EVENLY OVER THE GEOTEXTILE FABRIC PRIOR TO COMPACTING.



LANDFILL ROAD CUT SECTION

N.I.C. ~~STA 99+25 TO STA 113+75~~

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE 13144
REGISTERED PROFESSIONAL ENGINEER
2-25-14

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	2/19/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

TYPICAL SECTIONS

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=2'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-B1 TYPICAL SECTIONS

SHEET NUMBER
B1
1 of 2

[DATE: 2/19/2014 9:20 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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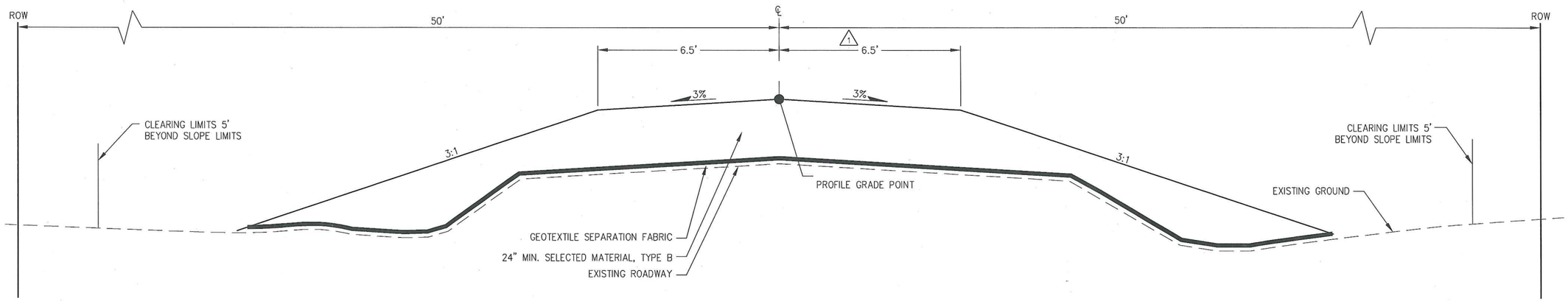
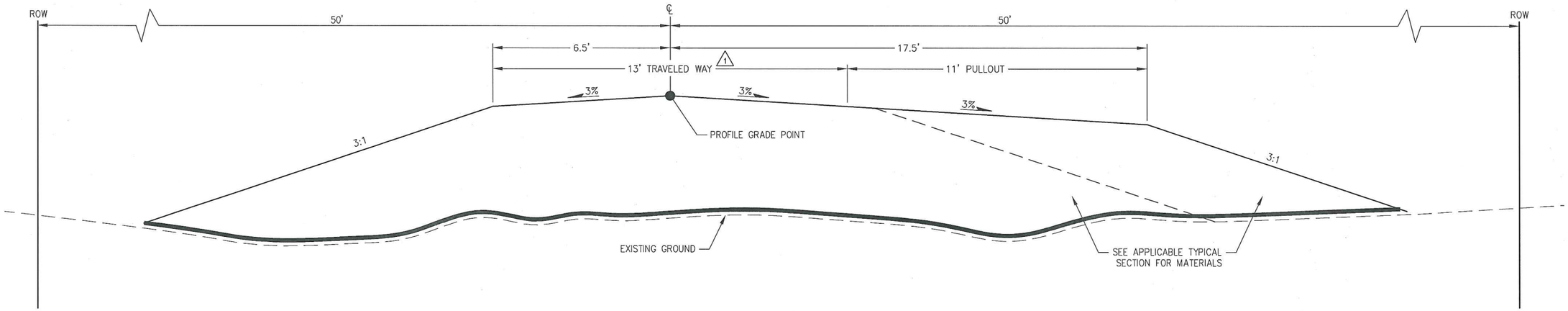


LANDFILL ROAD OVER EXISTING ROADWAY

STA 10+00 TO 15+00



LANDFILL ROAD: PULLOUTS

OPPOSITE HAND FOR LEFT PULLOUT

LEFT PULLOUT LOCATIONS

STA 39+75.00 TO STA 40+25.00
STA 62+75.00 TO STA 63+25.00
N.I.C. ~~STA 83+25.00 TO STA 83+75.00~~
N.I.C. ~~STA 109+75.00 TO STA 110+25.00~~

RIGHT PULLOUT LOCATIONS

STA 24+75.00 TO STA 25+25.00
STA 54+75.00 TO STA 55+25.00
N.I.C. ~~STA 70+75.00 TO STA 71+25.00~~
N.I.C. ~~STA 95+75.00 TO STA 96+25.00~~
N.I.C. ~~STA 126+00.00 TO STA 126+50.00~~

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STATE OF ALASKA 49TH
Julia R. Hanson
No. CE 13144
2-19-14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/19/2014
PLOT DATE	2/19/2014
SUBMITTAL	

TYPICAL SECTIONS

MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=2'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-B1 TYPICAL SECTIONS

SHEET NUMBER
B2
2 of 2

[DATE: 2/19/2014 9:20 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
[PATH: P:\Manilaq Association\524412\Design\Drawings\Civil\524412-C-B1 Typical Sections.dwg] [LAYOUT: 524412-C-B2 - Typical Sections]

ENGINEER'S ESTIMATE OF QUANTITIES ⚠1

ITEM NO.	ITEM	UNIT	PHASE 1 ESTIMATE QUANTITY	N.I.C. PHASE 2 ESTIMATED QUANTITY
201(1A)	CLEARING	ACRE	6.6	9.8
203(3)	UNCLASSIFIED EXCAVATION	CU YD	0	14,050
203(5B)	BORROW, TYPE B	CU YD	29,200	21,400
603(17-24)	24-INCH PIPE	LIN FT	26	0
603(17-36)	36-INCH PIPE	LIN FT	100	170
603(17-48)	48-INCH PIPE	LIN FT	105	0
615(1)	STANDARD SIGN	SQ FT	5	5
616(4)	THAW WIRE INSTALLATION	EACH	4	3
618(2)	SEEDING	POUND	157	254
630(1)	GEOTEXTILE, SEPARATION	SQ YD	25,900	33,000
633(1)	SILT FENCE	LIN FT	675	0
640(1)	MOBILIZATION AND DEMOBILIZATION	L SUM	ALL REQ'D	ALL REQ'D
641(1)	EROSION AND POLLUTION CONTROL ADMINISTRATION	L SUM	ALL REQ'D	ALL REQ'D
641(2)	TEMPORARY EROSION AND POLLUTION CONTROL	C SUM	ALL REQ'D	ALL REQ'D
642(1)	CONSTRUCTION SURVEYING	L SUM	ALL REQ'D	ALL REQ'D
643(2)	TRAFFIC MAINTENANCE	L SUM	ALL REQ'D	ALL REQ'D
643(3)	PERMANENT CONSTRUCTION SIGNS	L SUM	ALL REQ'D	ALL REQ'D

TABLE OF ESTIMATING FACTORS

ITEM NO.	DESCRIPTION	ESTIMATING FACTOR
618(2)	SEEDING	1 LB/ 1000 SF

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE 13144
2-25-14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO

DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/25/2014
PLOT DATE	2/25/2014
SUBMITTAL	

ESTIMATE OF QUANTITIES

MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER 524412
DRAWING FILE NAME 524412-C-C1 ESTIMATE OF QUANTITIES
SCALE

SHEET NUMBER
C1
1 of 1

[DATE: 2/25/2014 3:25 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
[PATH: P:\Manilaq Association\524412\Design\Drawings\Civil\524412-C-C1 Estimate of Quantities.dwg] [LAYOUT: 524412-C-C1 Estimate OF Quantites]

SIGN SUMMARY

SHEET NO.	POST NO.	STATION	OFFSET	TYPE	LEGEND	SIZE WxH (IN)	AREA (SF)	SIGN FACES
F1	1	13+35.00	RT	R2-1	"SPEED LIMIT 20 MPH"	24 X 30	5.00	S
~~F11~~	~~2~~	~~134+50.00~~	~~LT~~	~~R2-1~~	~~"SPEED LIMIT 20 MPH"~~	~~24 X 30~~	~~5.00~~	~~N~~

N.I.C.

SIGN NOTES:

1. FABRICATE ALL SIGNS FROM 0.125" THICK ALUMINUM SHEETING
2. USE 2-1/2" PERFORATED STEEL TUBE FOR ALL POSTS
3. USE A SOIL EMBEDMENT SLEEVE FOR ALL POST INSTALLATIONS
4. REFERENCE ADOT&PF STANDARD DRAWINGS S-00.10, S-05.01, S-20.10, & S-30.03 FOR SIGN DETAILS

CULVERT SUMMARY

	SHEET	CULVERT NO.	INLET STATION	INLET OFFSET (FT)	INLET ELEV	OUTLET STATION	OUTLET OFFSET (FT)	OUTLET ELEV	LENGTH (FT)	DIAMETER (IN)	THAW WIRE	REMARKS
	F1	(1)	16+11.0	3.6' RT	158.3	16+20.4	20.6' LT	158.1	26	24	Y	CONNECT TO EXISTING PIPE
1	F2	(1a)	20+39.3	22.1' LT	154.3	20+18.2	23.3' RT	153.9	50	36	Y	
	F4	(2)	47+44.3	20.8' LT	145.8	47+52.4	28.5' RT	143.8	50	36	Y	
	F4	(3)	51+25.3	44.6' LT	139.9	51+73.1	48.9' RT	139.3	105	48	Y	
N.I.C.	~~F8~~	~~(4)~~	~~95+59.7~~	~~30.1' LT~~	~~183.8~~	~~95+76.2~~	~~46.2' RT~~	~~183.0~~	~~78~~	~~36~~	~~Y~~	
N.I.C.	~~F10~~	~~(5)~~	~~124+16.0~~	~~20.5' LT~~	~~188.1~~	~~124+16.0~~	~~21.5' RT~~	~~187.7~~	~~42~~	~~36~~	~~Y~~	
N.I.C.	~~F10~~	~~(6)~~	~~130+25.0~~	~~23.6' LT~~	~~181.7~~	~~130+25.0~~	~~26.4' RT~~	~~180.9~~	~~50~~	~~36~~	~~Y~~	

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE 13144
REGISTERED PROFESSIONAL ENGINEER
2-25-14

REVISIONS NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	2/25/2014	
PLOT DATE	2/25/2014	
SUBMITTAL		

SUMMARY TABLES

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

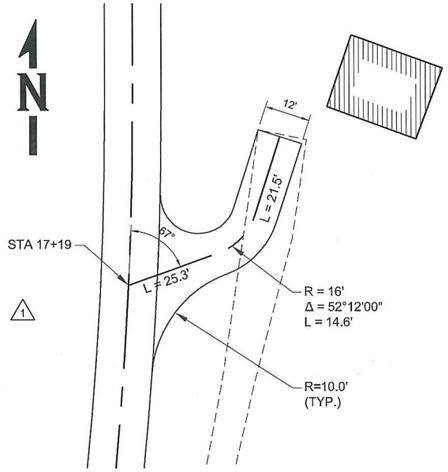
PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-D1 SUMMARY SHEET

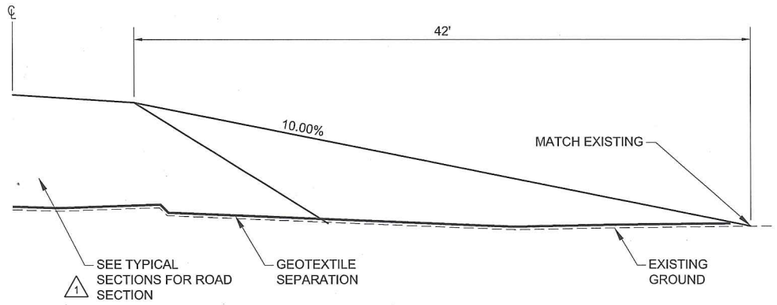
SCALE

SHEET NUMBER
D1
1 of 1

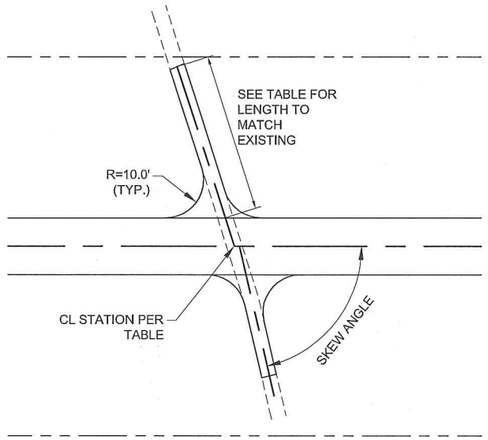
[DATE: 2/25/2014 3:26 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
[PATH: P:\Maniilaq Association\524412\Design\Drawings\Civil\524412-C-D1 Summary Sheet.dwg] [LAYOUT: 524412-C-D1 - Summary Sheet]



DRIVEWAY PLAN VIEW DETAIL



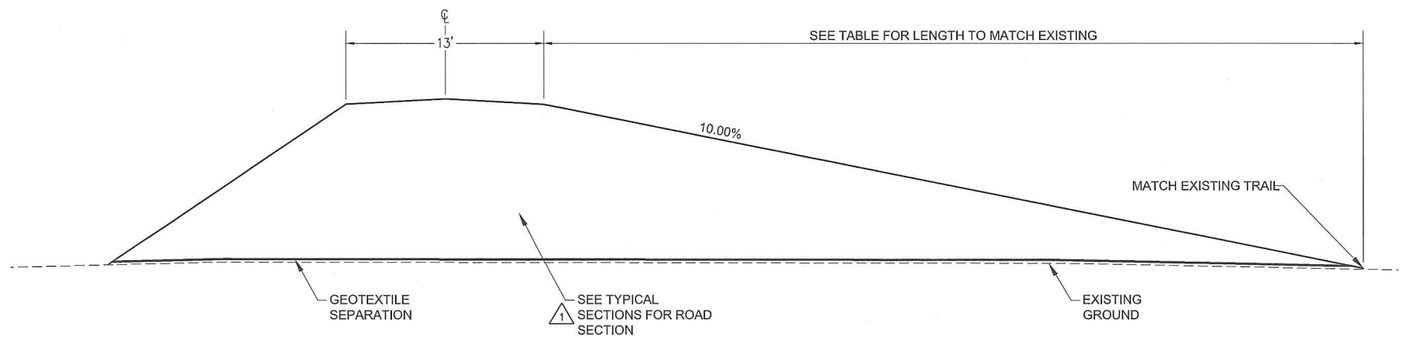
DRIVEWAY PROFILE



TRAIL CROSSING PLAN VIEW DETAIL

N.I.C.

TRAIL CROSSINGS					
SHEET	CL STATION	SIDE	SKEW	WIDTH	LENGTH
F1	16+25	RIGHT	97°	6.5 FT	43 FT
F3	35+15	RIGHT	46°	4 FT	60 FT
~~F6~~	~~80+15~~	~~LEFT~~	~~26°~~	~~4 FT~~	~~85 FT~~



TRAIL CROSSING PROFILE (REVERSE FOR LEFT SIDE)

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300 West 31st Avenue
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www.whpacific.com

STATE OF ALASKA
49 TH
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REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/19/2014
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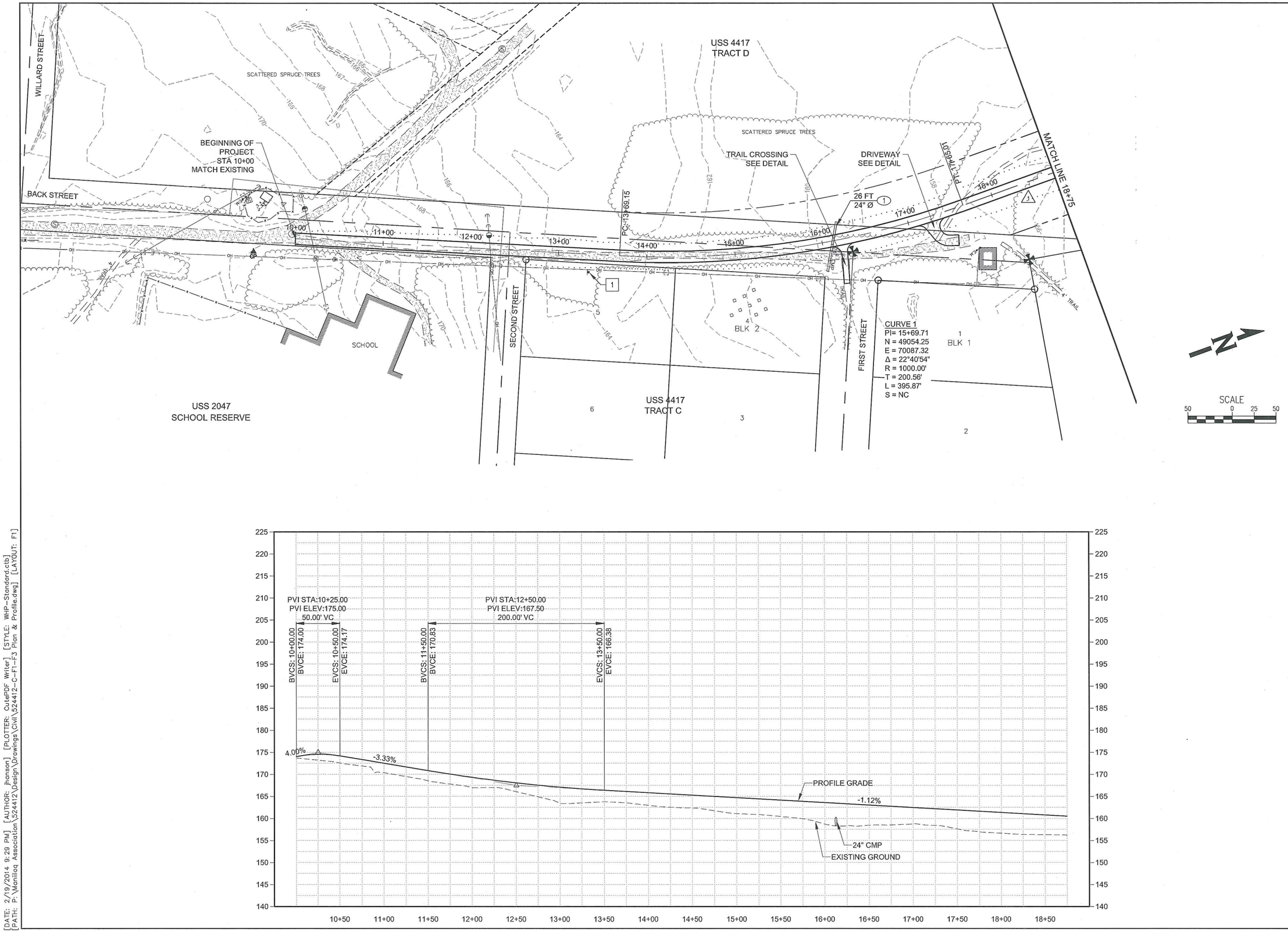
SUBMITTAL	

DETAILS

MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER 524412
DRAWING FILE NAME 524412-C-E1 DETAILS
SCALE NTS

SHEET NUMBER
1 E1
1 of 1



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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE 13144
2-25-14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/19/2014
PLOT DATE	2/19/2014
SUBMITTAL	

PLAN & PROFILE
BOP to STA 18+75
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F1-F3 PLAN & PROFILE

SHEET NUMBER
F1
1 of 11

[DATE: 2/19/2014 9:29 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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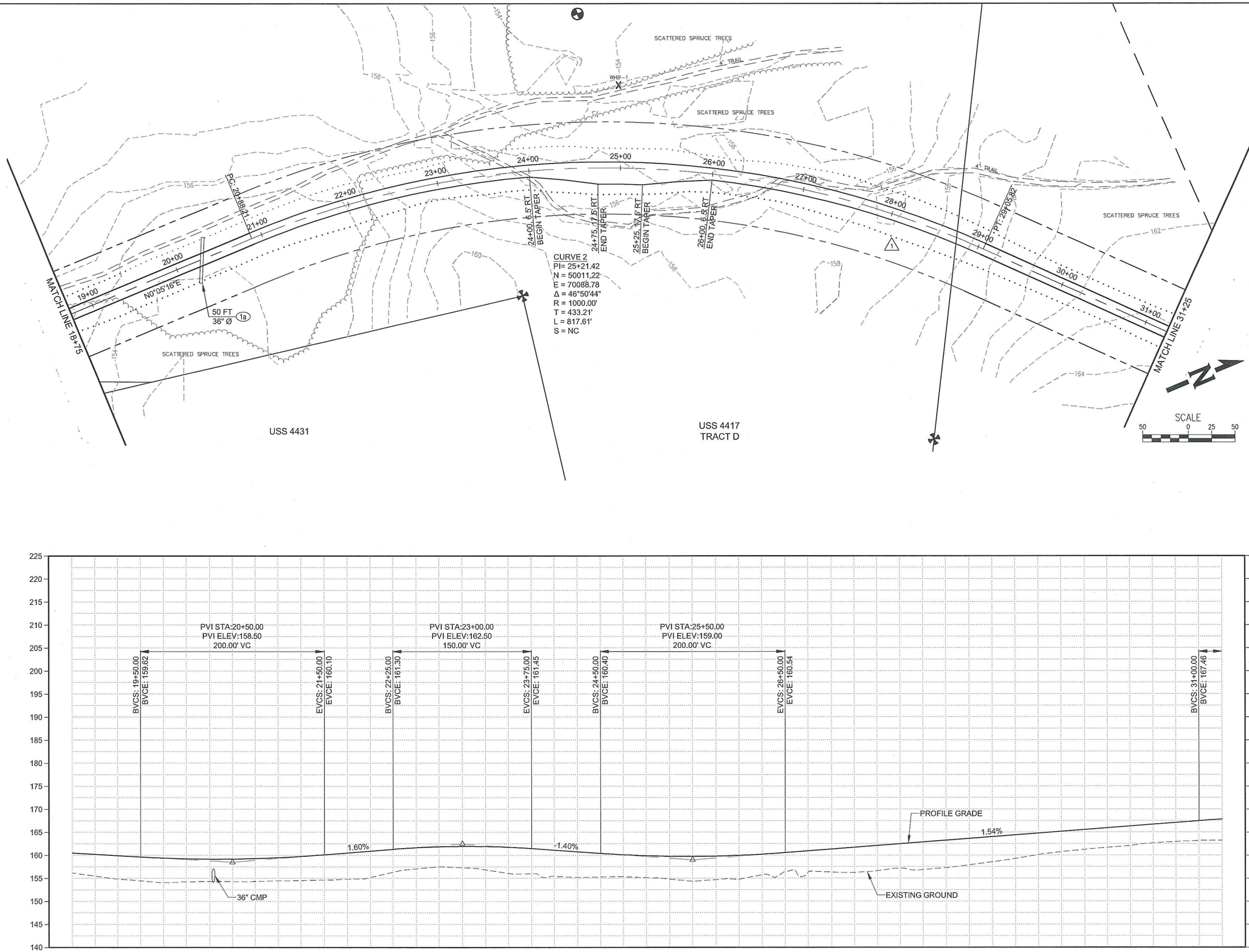

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STATE OF ALASKA
49 TH
Julia R. Hanson
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REGISTERED PROFESSIONAL ENGINEER
2-25-14

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	2/25/2014
LAST EDIT		2/25/2014
PLOT DATE		2/25/2014
SUBMITTAL		

PLAN & PROFILE
STA 18+75 to STA 31+25
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F1-F3 PLAN & PROFILE

SHEET NUMBER
F2
2 of 11

[DATE: 2/25/2014 11:00 AM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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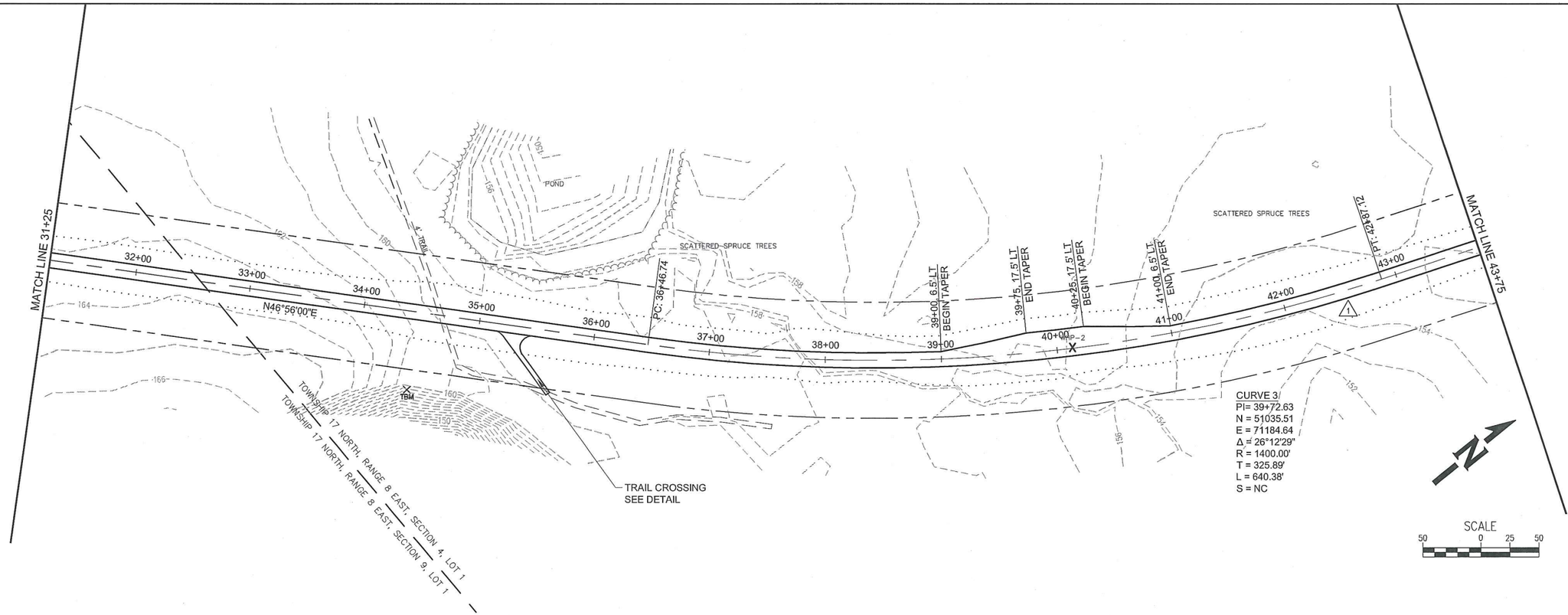

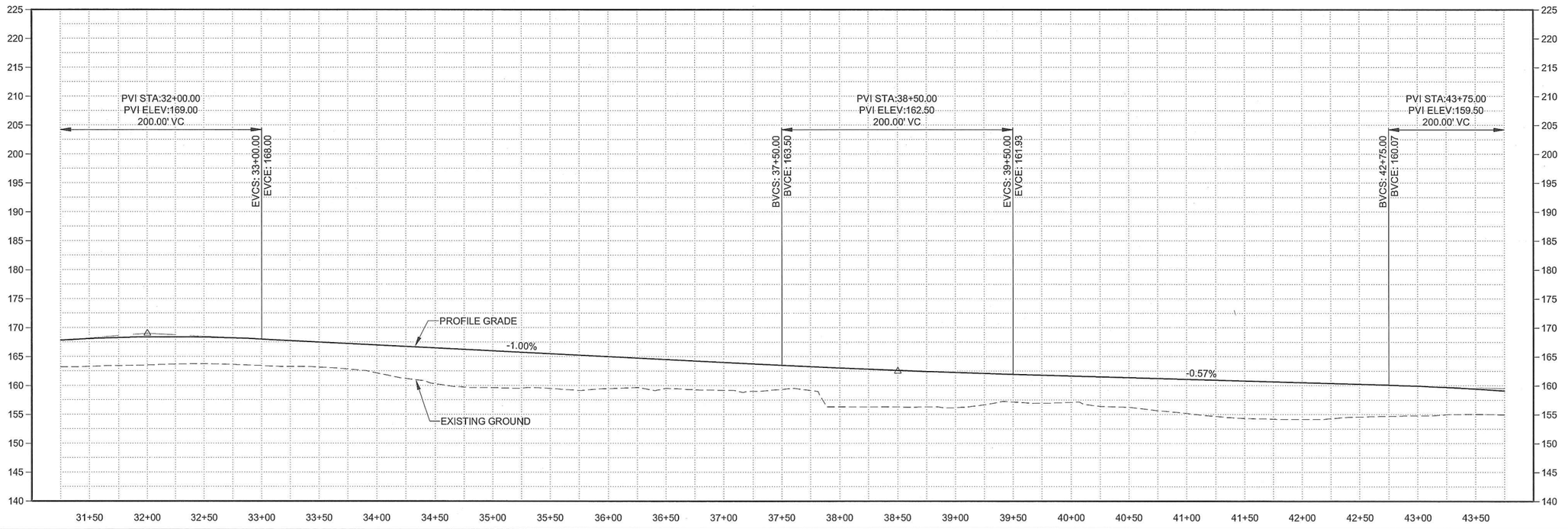

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49 TH
Julia R. Hanson
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2-19-14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	2/19/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

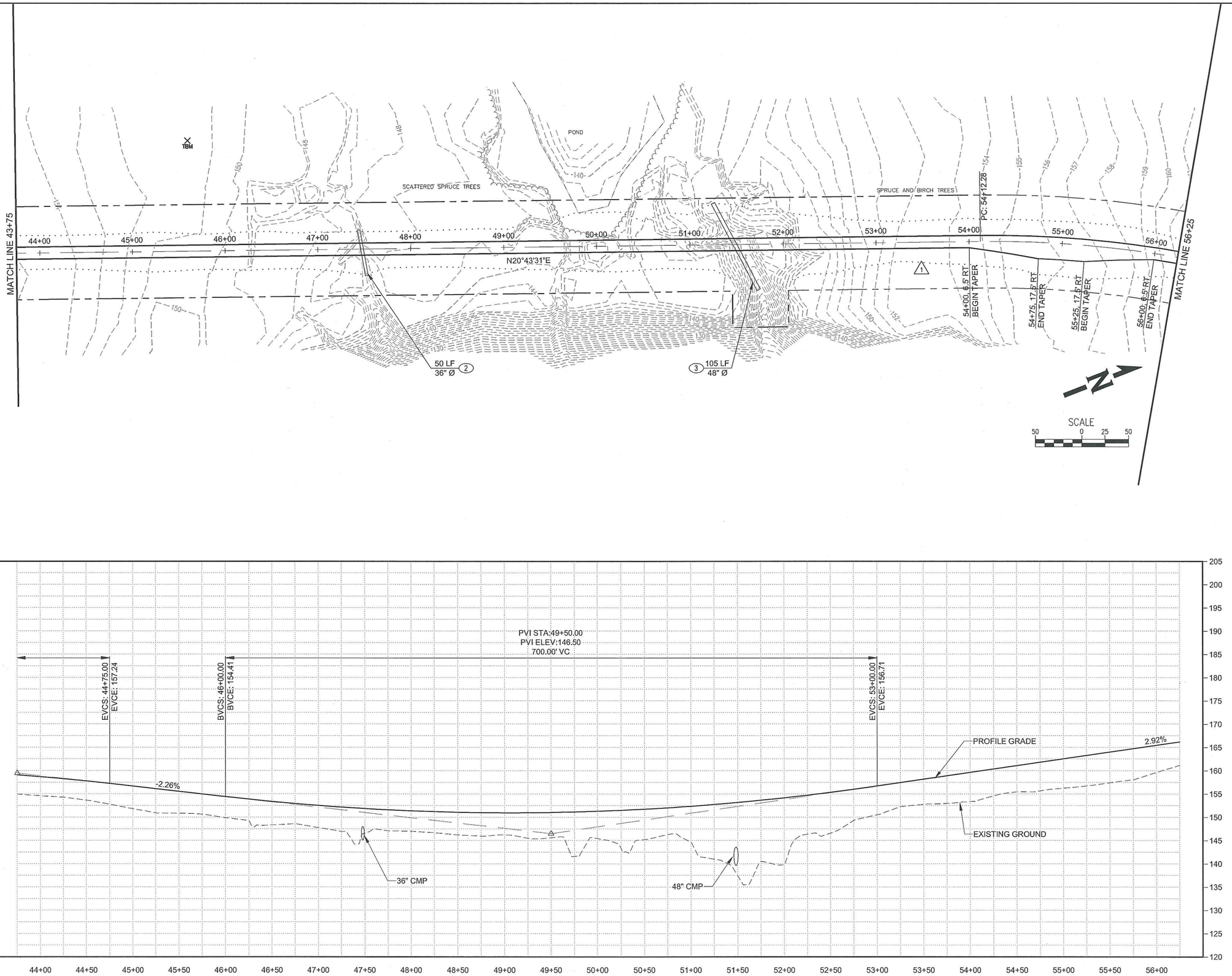
PLAN & PROFILE
STA 31+25 to STA 43+75
MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE: 1"=50'

PROJECT NUMBER: 524412

DRAWING FILE NAME: 524412-C-F1-F3 PLAN & PROFILE

SHEET NUMBER
F3
3 of 11



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49 TH
Julia R. Hanson
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REGISTERED PROFESSIONAL ENGINEER
2-25-14

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	2/19/2014
LAST EDIT		2/19/2014
PLOT DATE		2/25/2014
SUBMITTAL		

PLAN & PROFILE
STA 43+75 to STA 56+25
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F4-F6 PLAN & PROFILE

SHEET NUMBER
F4
4 of 11

[DATE: 2/25/2014 4:30 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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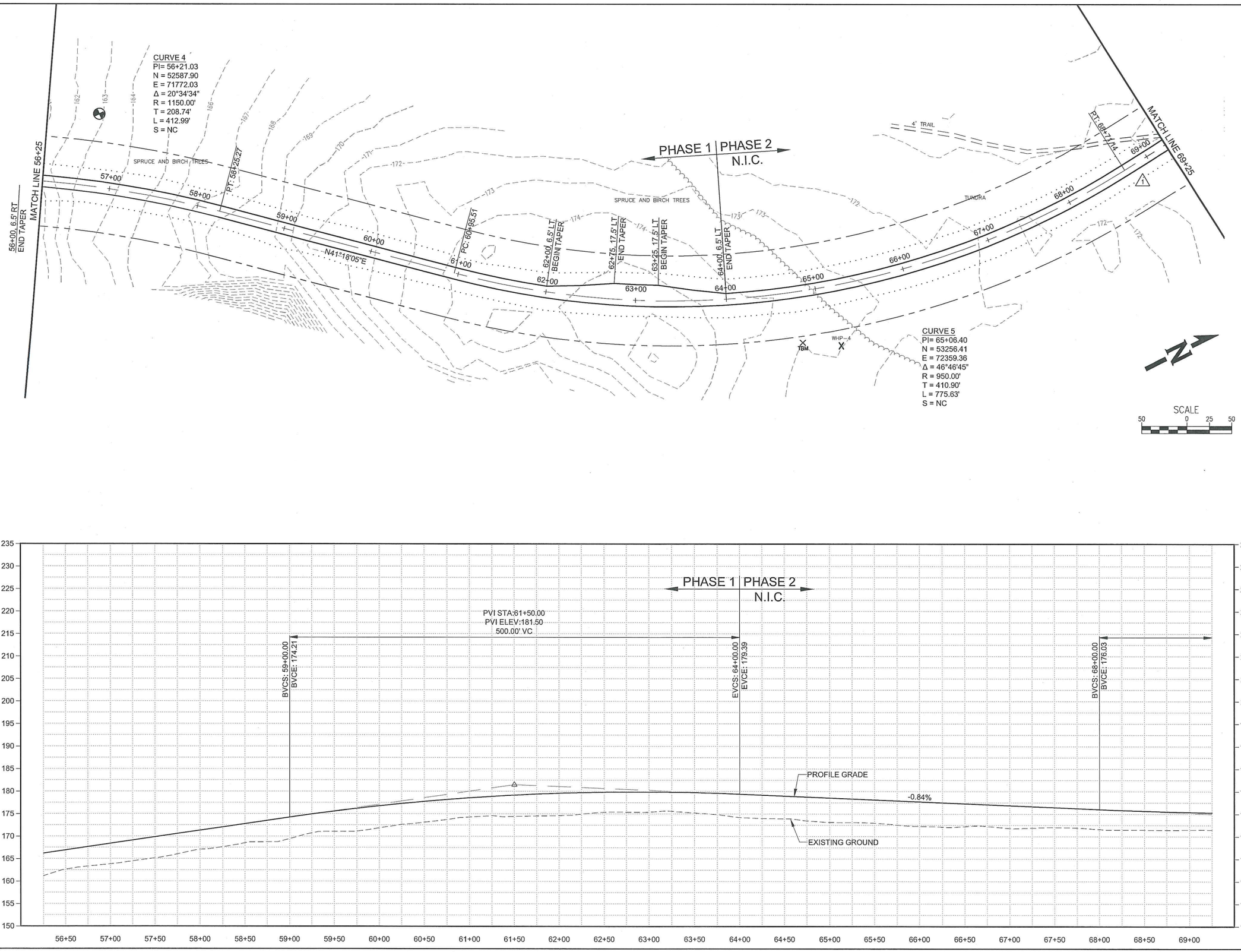

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49TH
Julia R. Hanson
No. CE 13144
2/19/14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	1/3/2014
PLOT DATE	2/19/2014
SUBMITTAL	

PLAN & PROFILE
STA 56+25 to STA 69+25
MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

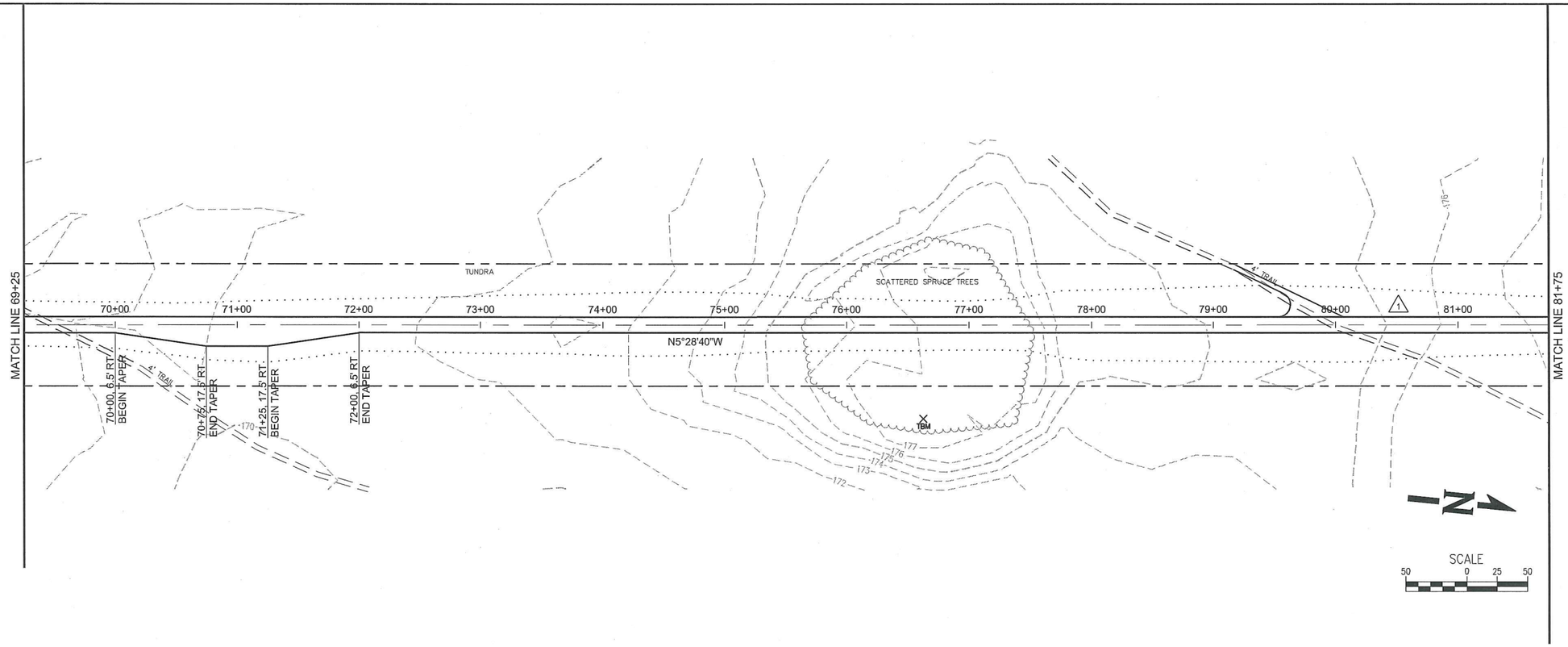
SCALE: 1"=50'

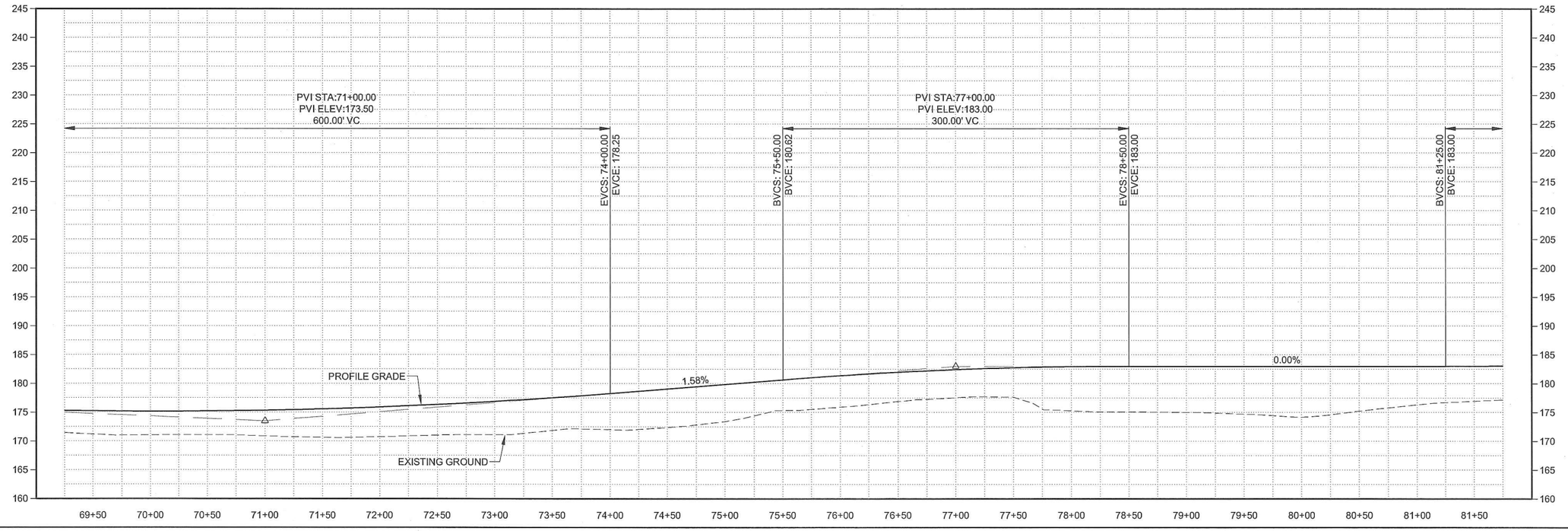
PROJECT NUMBER: 524412

DRAWING FILE NAME: 524412-C-F4-F6 PLAN & PROFILE

SHEET NUMBER
F5
5 of 11

[DATE: 2/19/2014 9:45 PM] [AUTHOR: kzajac] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
[PATH: P:\Maniilaq Association\524412\Design\Drawings\Civil\524412-C-F4-F6 Plan & Profile.dwg] [LAYOUT: F5]





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STATE OF ALASKA
49 TH
Julia R. Hanson
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REGISTERED PROFESSIONAL ENGINEER
2/19/14

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	1/3/2014
LAST EDIT		2/19/2014
PLOT DATE		
SUBMITTAL		

PLAN & PROFILE
STA 69+25 to STA 81+75
MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F4-F6 PLAN & PROFILE

SHEET NUMBER
F6
6 of 11

[DATE: 2/19/2014 9:47 PM] [AUTHOR: kzajac] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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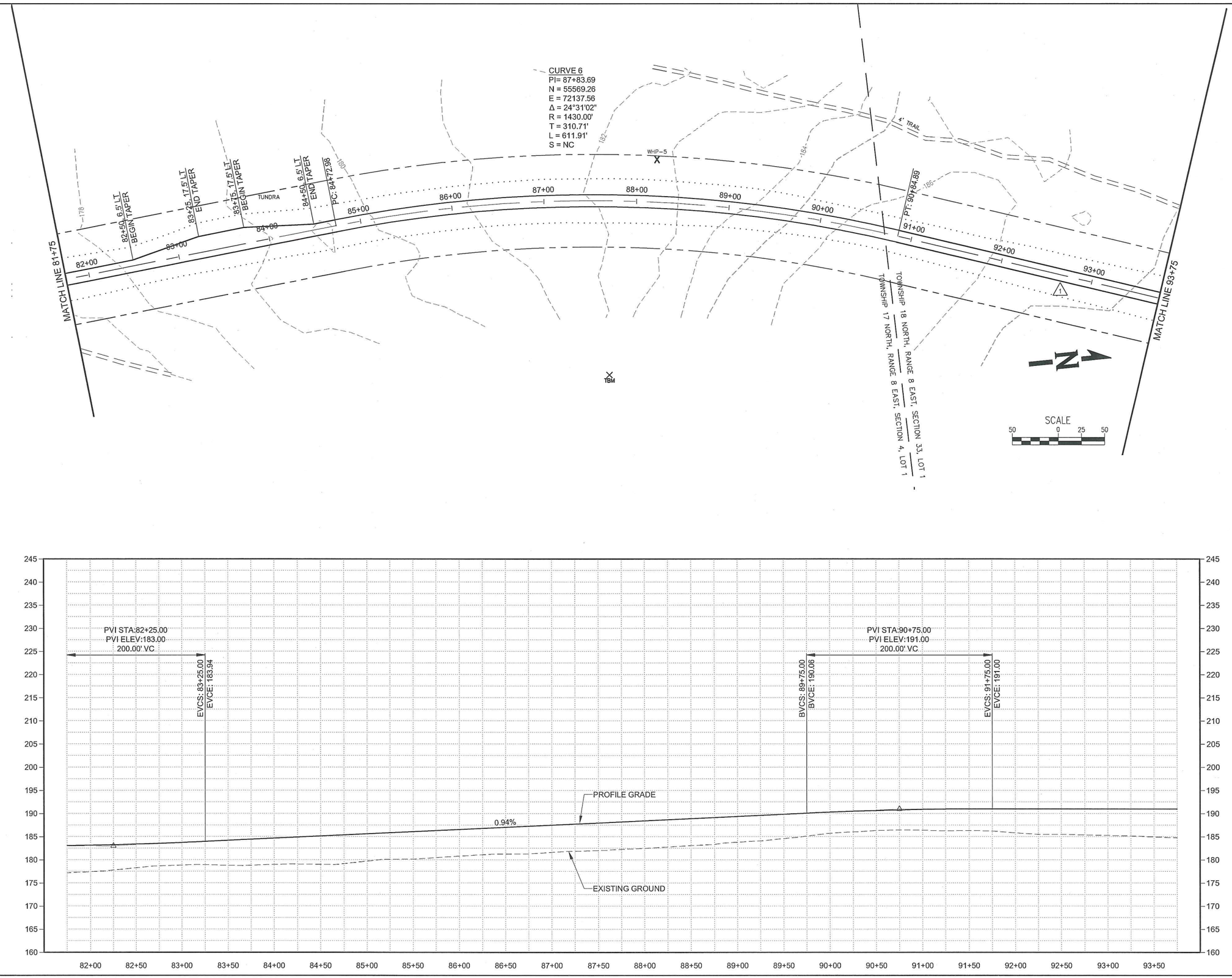

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STATE OF ALASKA
49 TH
Julia R. Hanson
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REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	1/3/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

PLAN & PROFILE
STA 81+75 to STA 93+75
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F7-F9 PLAN & PROFILE

SCALE 1"=50'

SHEET NUMBER
F7
7 of 11

[DATE: 2/19/2014 10:10 PM] [AUTHOR: kzajac] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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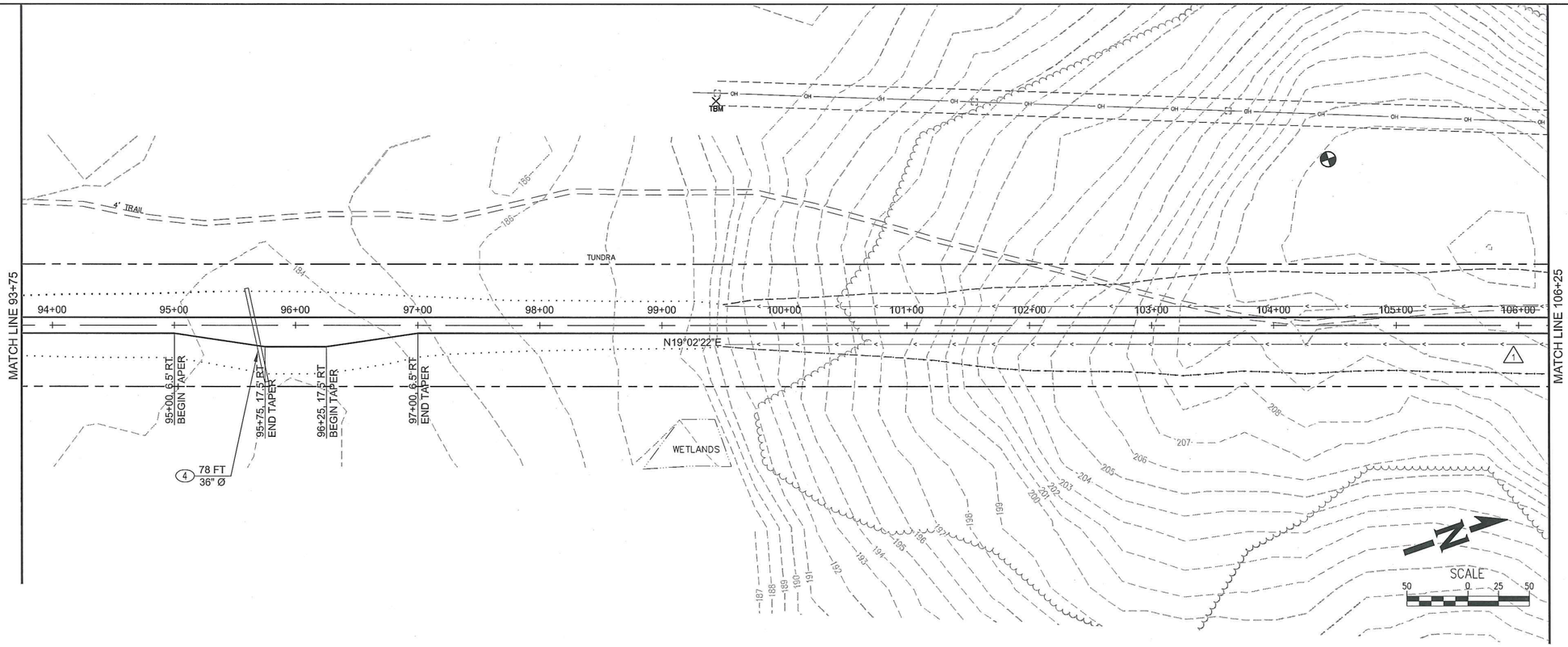

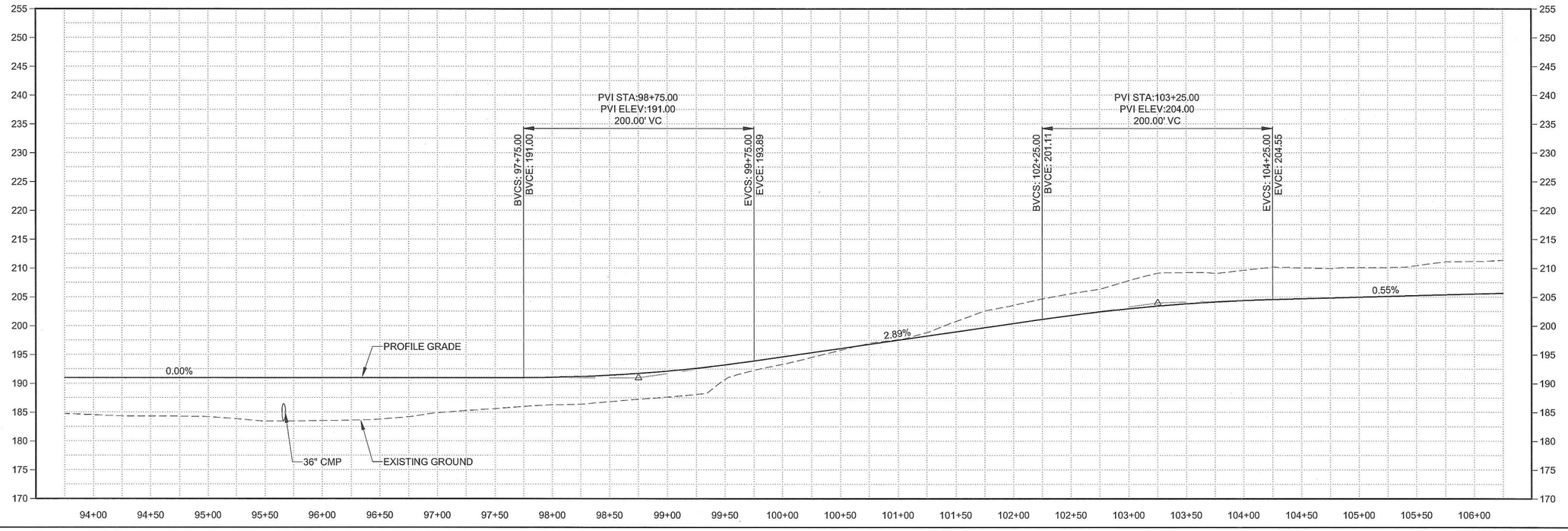

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STATE OF ALASKA
49TH
Julia R. Hanson
No. CE-13144
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	1/3/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

PLAN & PROFILE
STA 93+75 to STA 106+25
MANILLAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER 524412
DRAWING FILE NAME 524412-C-F7-F9 PLAN & PROFILE
SCALE 1"=50'

SHEET NUMBER
F8
8 of 11

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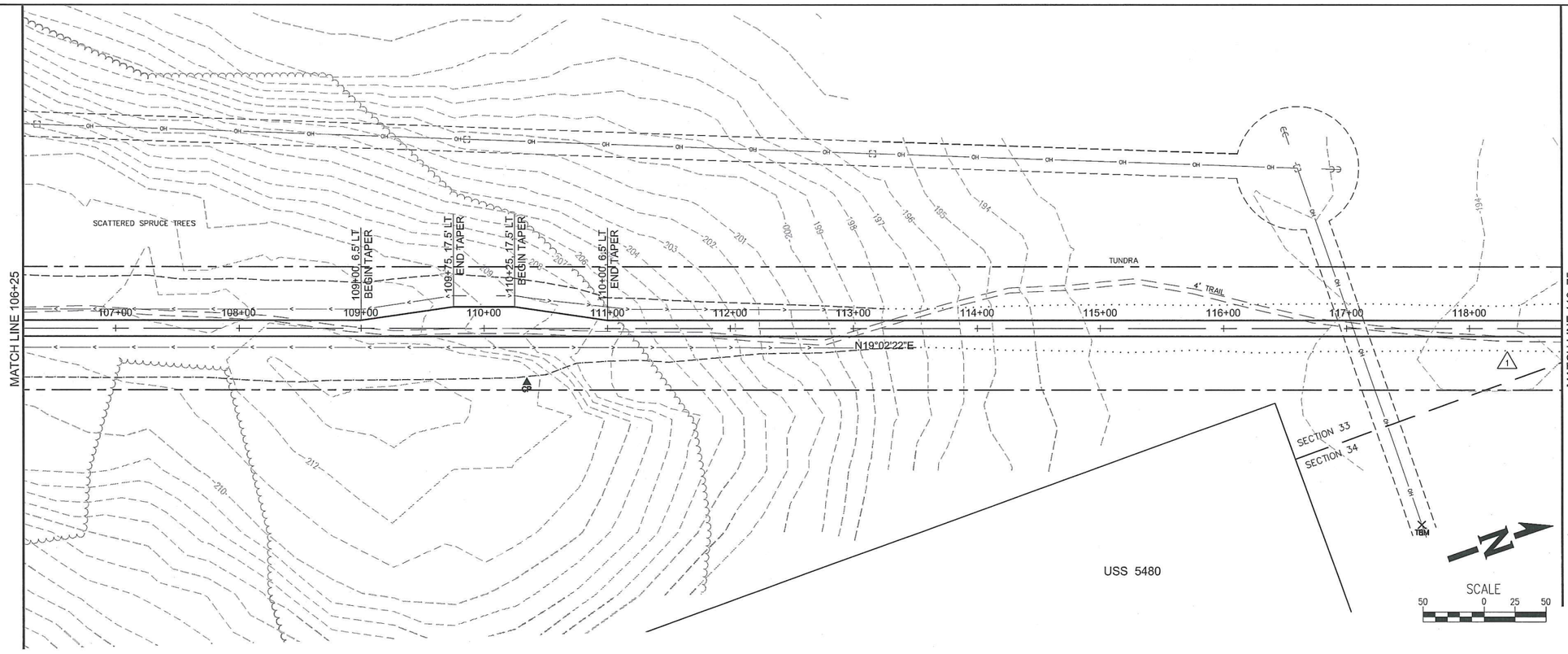

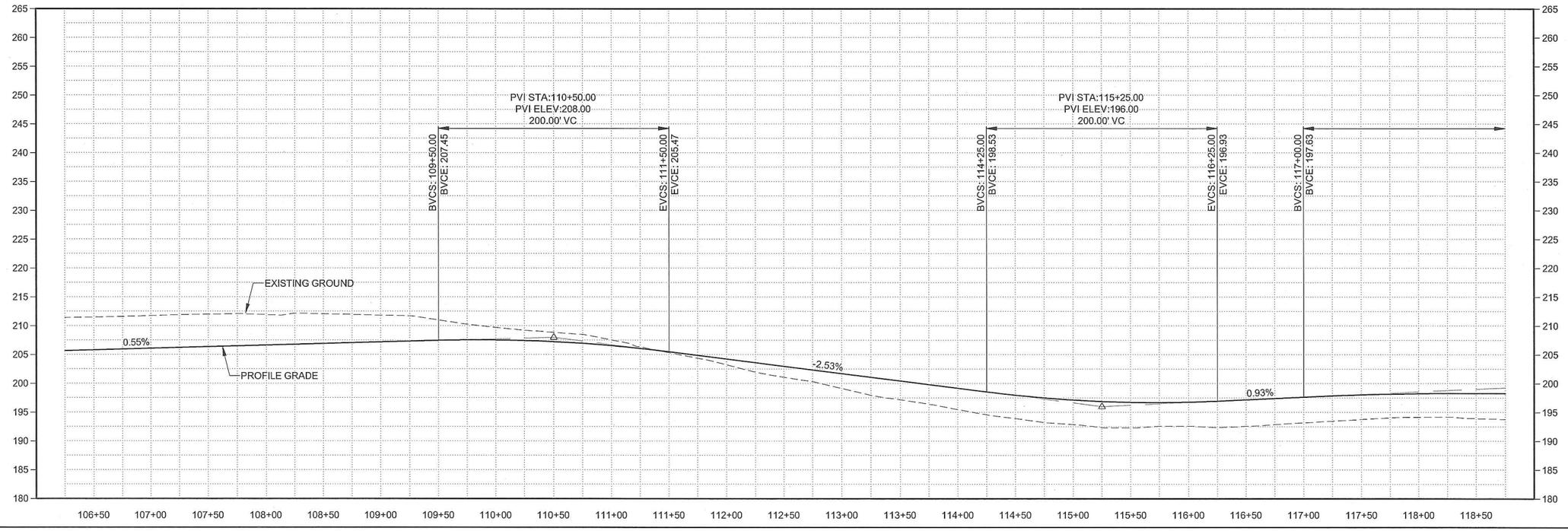

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE-13144
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/19/2014
PLOT DATE	2/19/2014
SUBMITTAL	

PLAN & PROFILE
STA 106+25 to 118+75
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F7-F9 PLAN & PROFILE

SHEET NUMBER
F9
9 of 11

[DATE: 2/19/2014 10:14 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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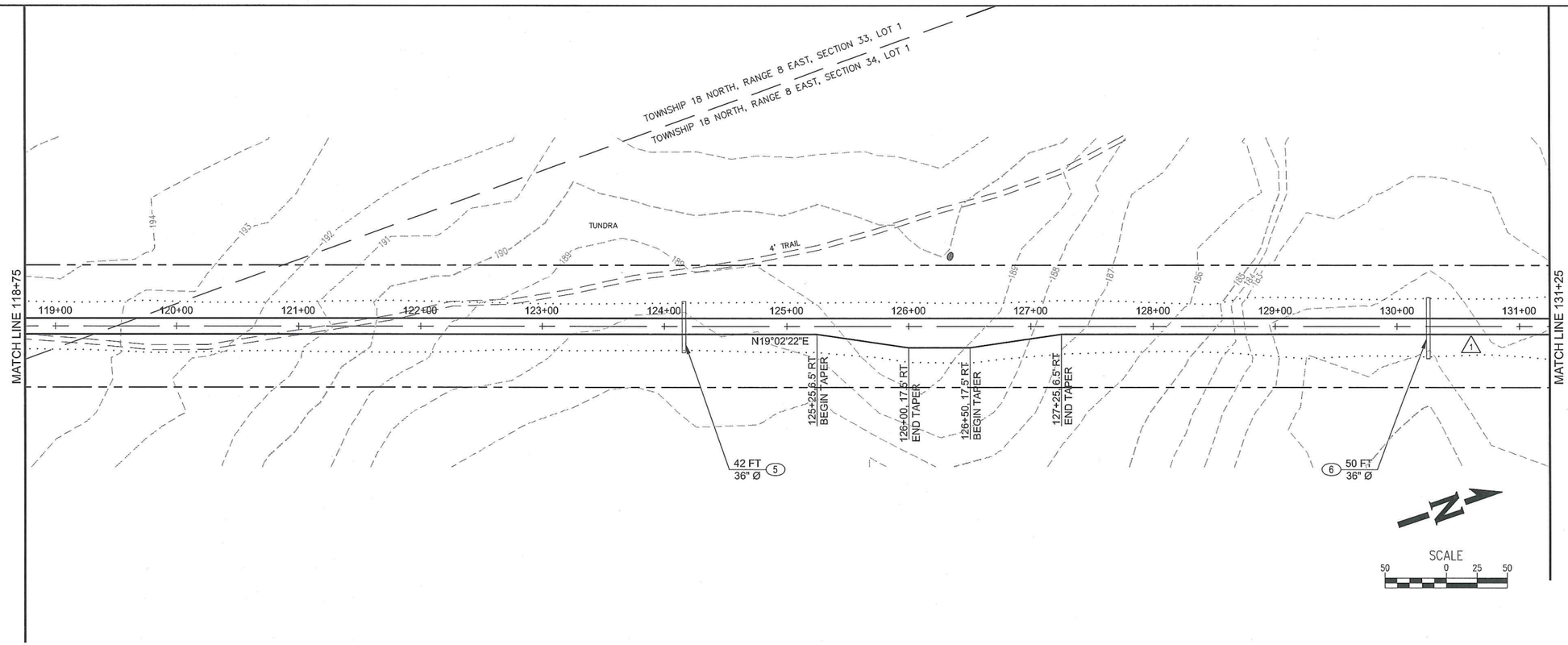

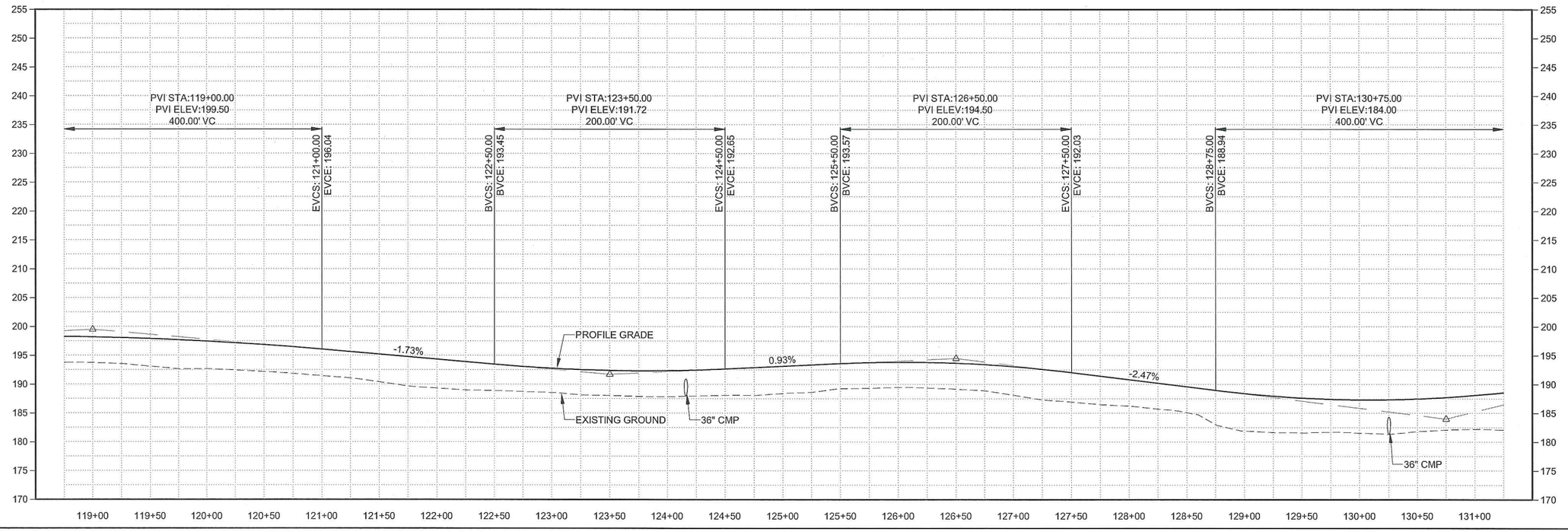

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE 13144
2/19/14
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	1/3/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

PLAN & PROFILE
STA 118+75 to STA 131+25
MANILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-F10-F12 PLAN & PROFILE

SHEET NUMBER
F10
10 of 11

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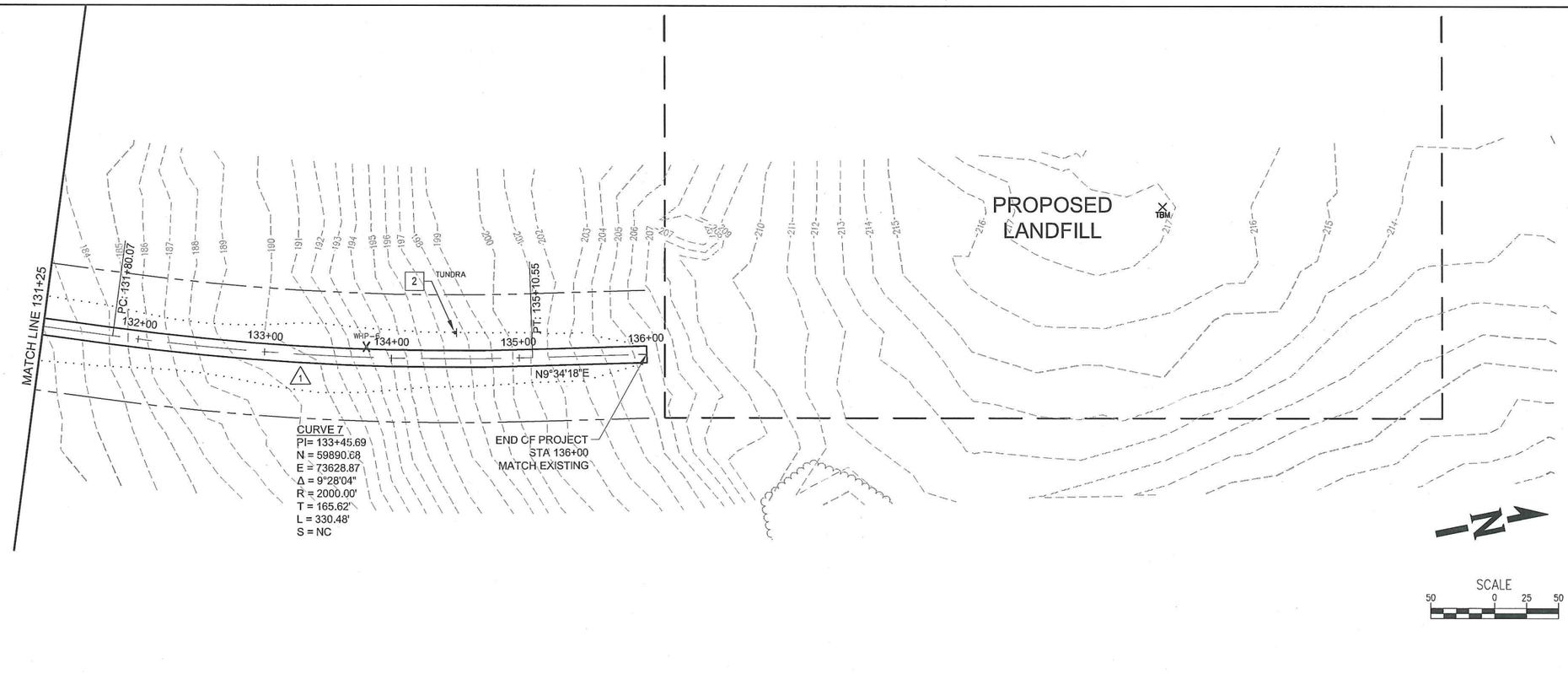

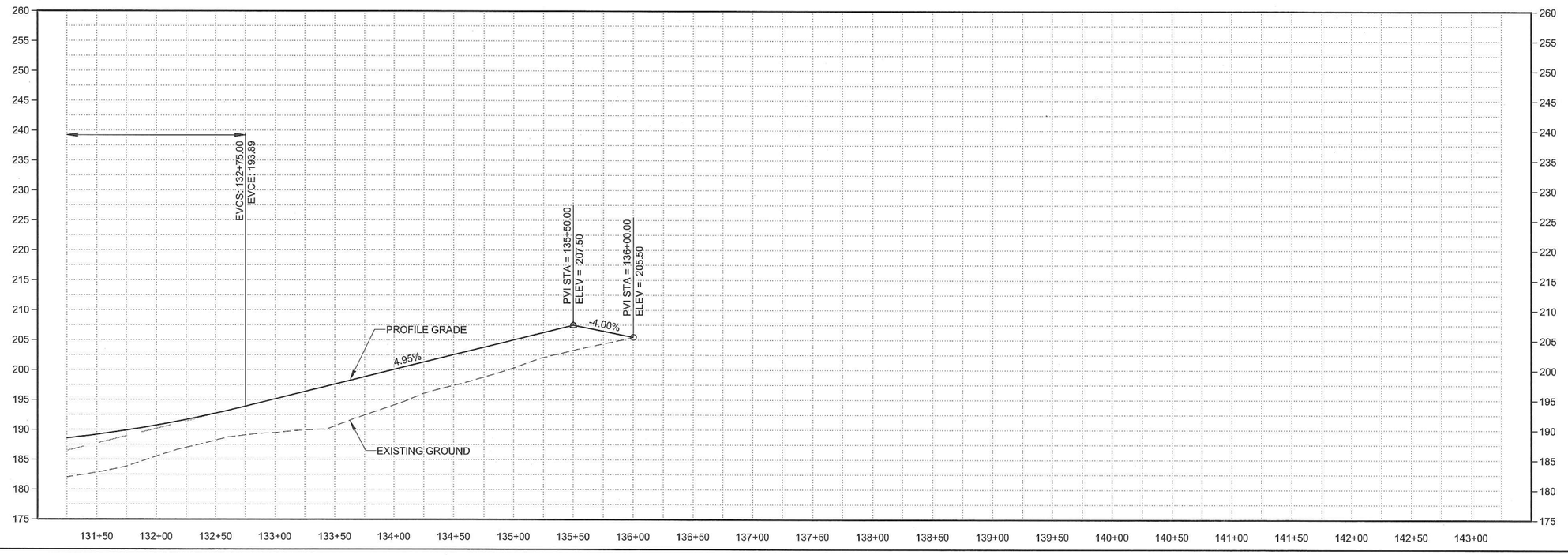

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STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE-13144
REGISTERED PROFESSIONAL ENGINEER
2/19/14

REVISIONS			
NO.	BY	DATE	REMARKS
1	KLZ	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	2/19/2014	
PLOT DATE	2/19/2014	
SUBMITTAL		

PLAN & PROFILE
STA 131+25 to EOP
MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER: 524412
DRAWING FILE NAME: 524412-C-F10-F12 PLAN & PROFILE
SCALE: 1"=50'

SHEET NUMBER
F11
11 of 11

WILLARD STREET

BACK STREET

USS 4417
TRACT D

MATCH LINE 18+75

10+00

15+00

SECOND STREET

FIRST STREET

USS 2047
SCHOOL RESERVE

USS 4417
TRACT C

LEGEND

- SILT FENCE
- SURFACE WATER
- FILL LIMITS
- DRAINAGE PATHWAY
- SEEDING

SCALE
50 0 25 50

20+00

25+00

30+00

MATCH LINE 18+75

MATCH LINE 31+25

USS 4431

USS 4417
TRACT D

SCALE
50 0 25 50

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2-20-14

REVISIONS			
NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	2/20/2014
LAST EDIT		2/20/2014
PLOT DATE		2/20/2014
SUBMITTAL		

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

SCALE 1"=50'

PROJECT NUMBER 524412

DRAWING FILE NAME 524412-C-Q1-Q3 ESCP

SHEET NUMBER
Q1
1 of 6

[DATE: 2/20/2014 2:22 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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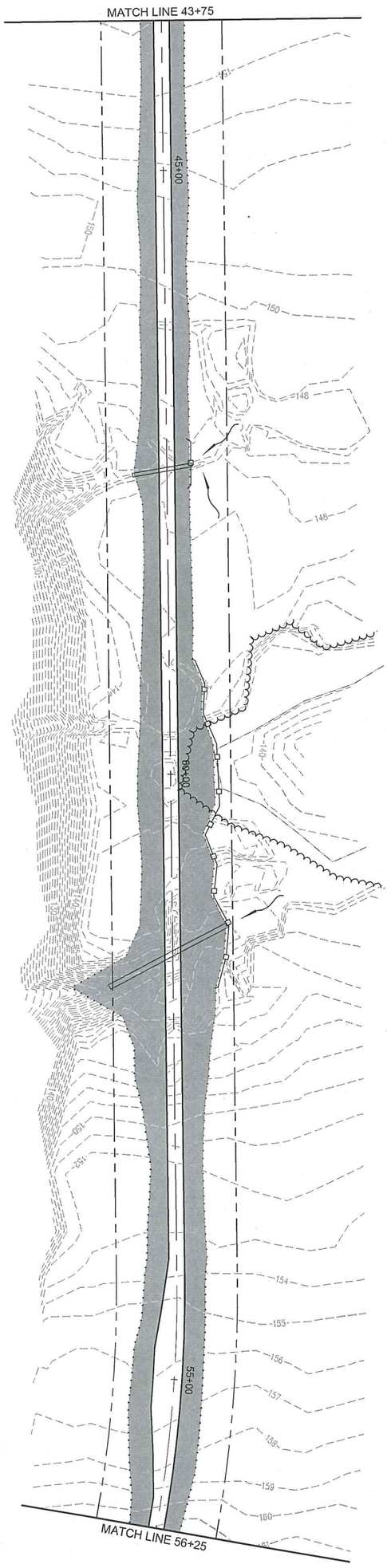

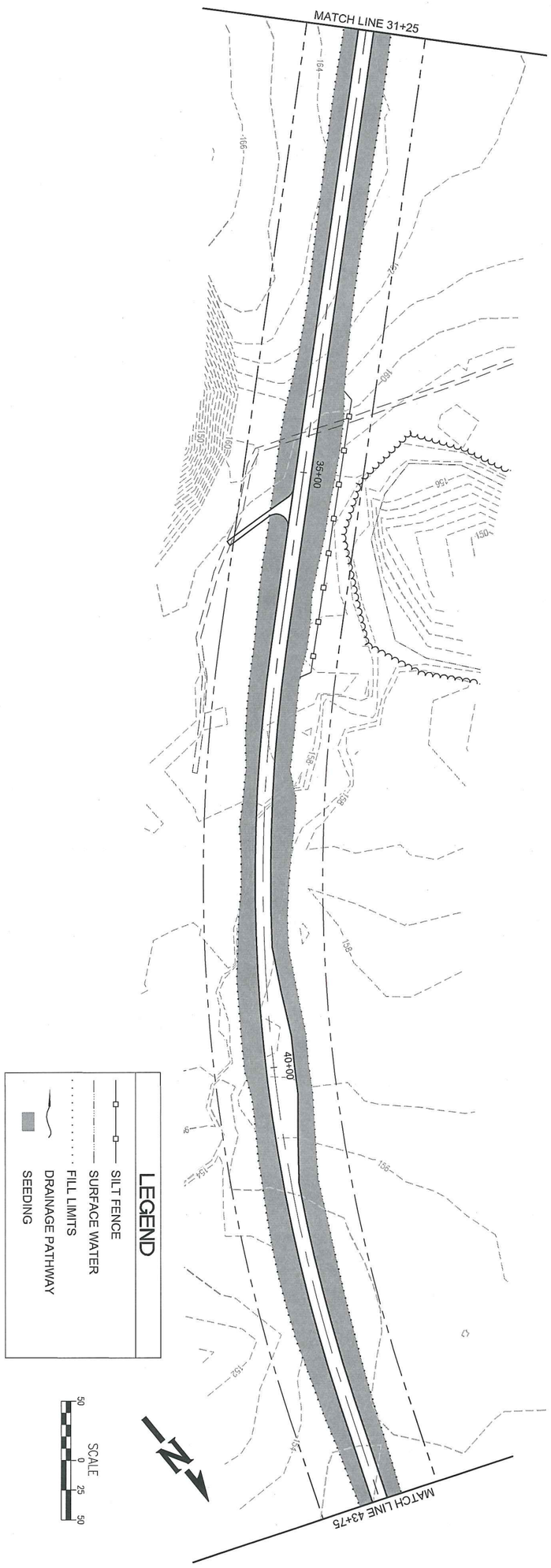

LEGEND

- SILT FENCE
- SURFACE WATER
- FILL LIMITS
- DRAINAGE PATHWAY
- SEEDING

SHEET NUMBER Q2 2 of 6

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER	DRAWING FILE NAME	SCALE
524412	524412-C-Q1-Q3 ESCP	1"=50'

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/20/2014
PLOT DATE	2/20/2014
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

REGISTERED PROFESSIONAL ENGINEER — Justin R. Hancock — No. CE 13144 — STATE OF ALASKA — 49TH

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NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	
DRAWN	JRH	
CHECKED	ELM	
APPROVED	ELM	2/20/2014
LAST EDIT		2/20/2014
PLOT DATE		2/20/2014
SUBMITTAL		

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER	DRAWING FILE NAME	SCALE
524412	524412-C-Q1-Q3 ESCP	1"=50'

SHEET NUMBER
Q3
3 of 6

[DATE: 2/20/2014 2:34 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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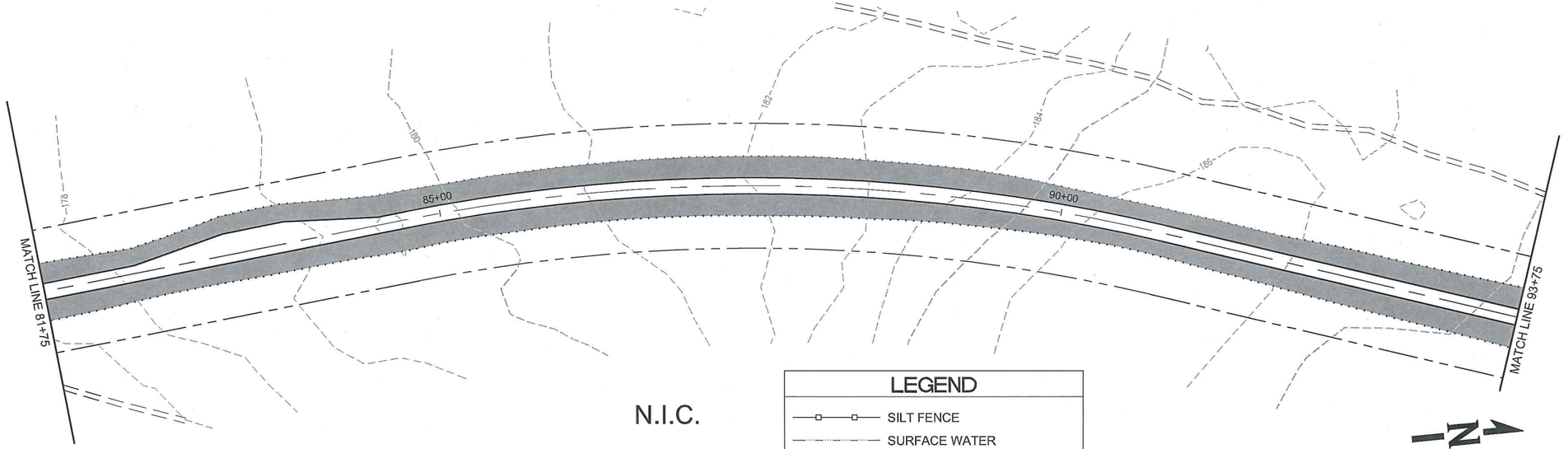


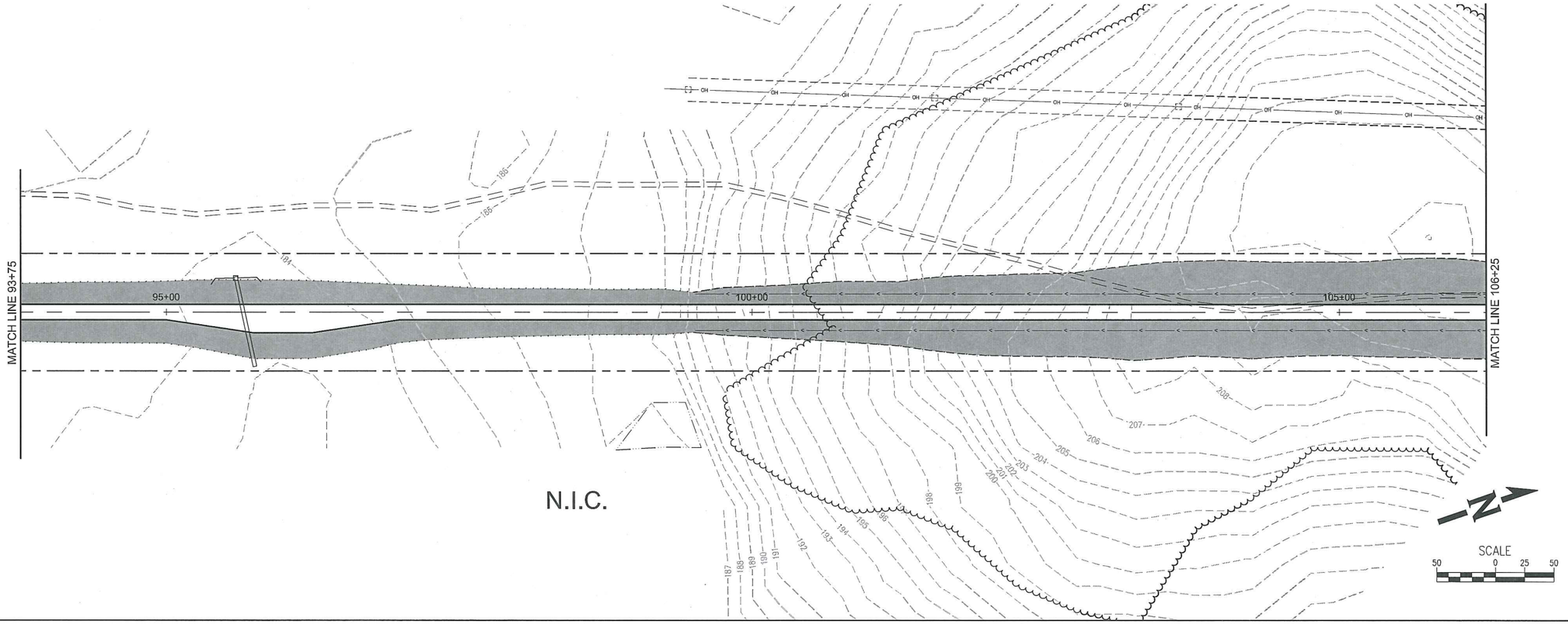
N.I.C.

LEGEND

- SILT FENCE
- SURFACE WATER
- FILL LIMITS
- DRAINAGE PATHWAY
- SEEDING

N

SCALE
50 0 25 50



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SCALE
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WHPacific
300 West 31st Avenue
Anchorage, AK 99503
907-339-6500 Fax 907-339-5327
www.whpacific.com

STATE OF ALASKA
49 TH
Julia R. Hanson
No. CE-13144
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

SHEET INFO		
DESIGNED	JRH	2/20/2014
DRAWN	JRH	2/20/2014
CHECKED	ELM	
APPROVED	ELM	
LAST EDIT	2/20/2014	
PLOT DATE	2/20/2014	
SUBMITTAL		

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER	DRAWING FILE NAME	SCALE
524412	524412-C-Q4-Q6 ESCP	1"=50'

SHEET NUMBER
Q4
4 of 6

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[DATE: 2/20/2014 2:39 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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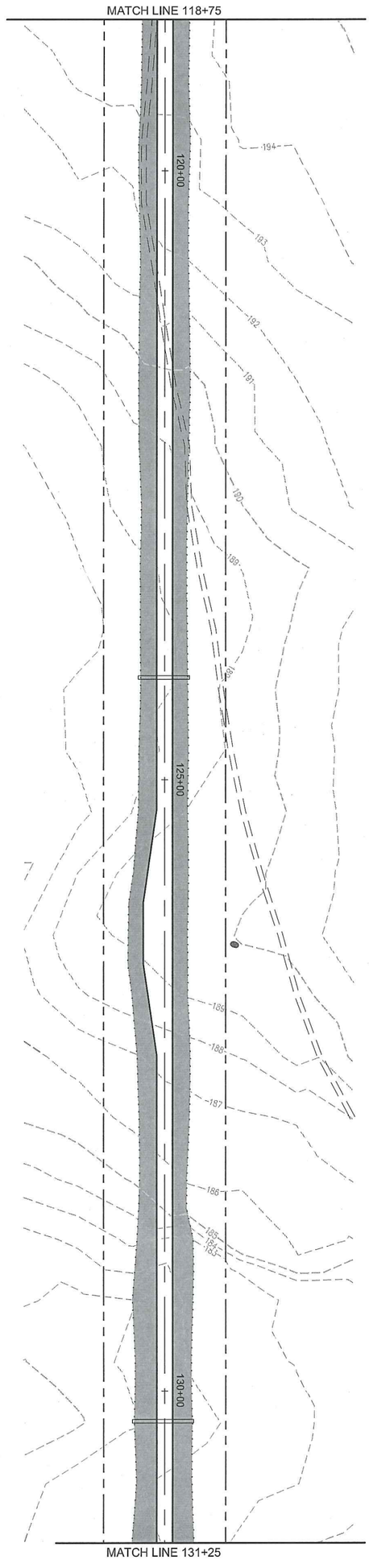

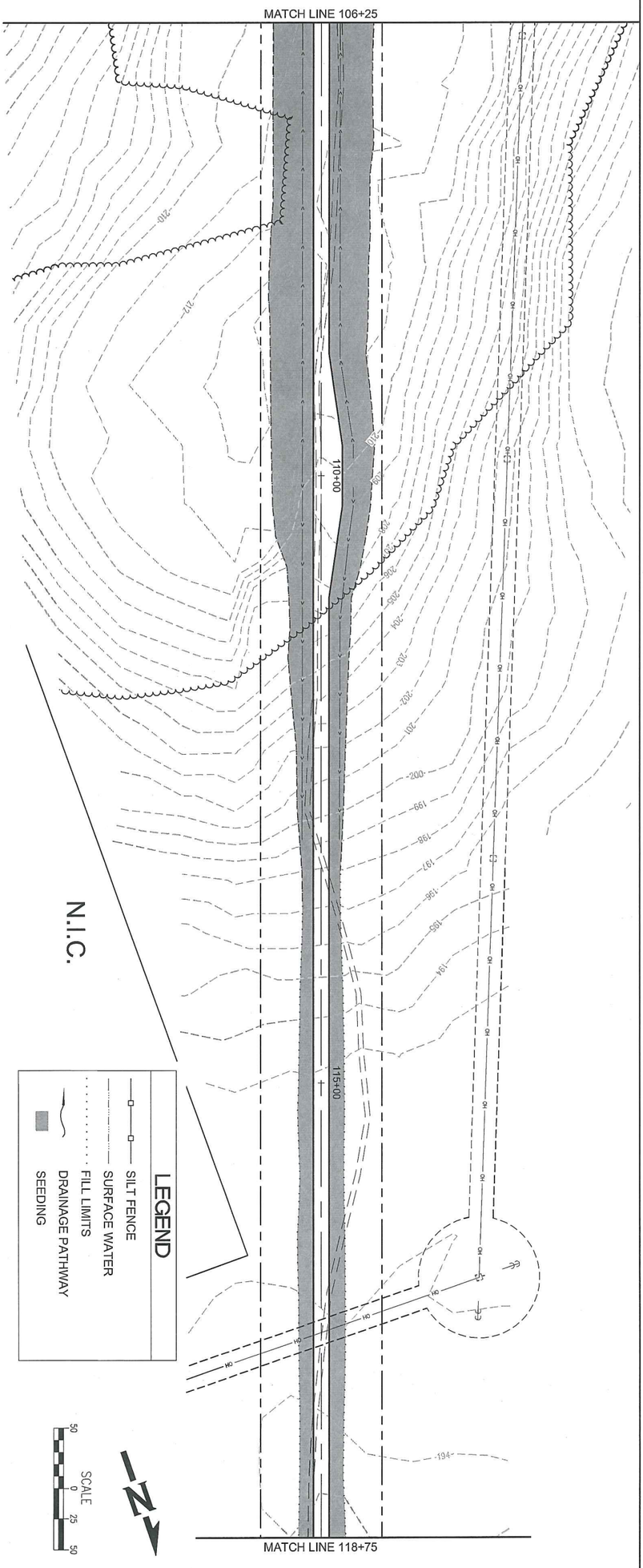

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER	DRAWING FILE NAME	SCALE
524412	524412-C-Q4-Q6 ESCP	1"=50'

SHEET NUMBER
Q5
5 of 6

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/20/2014
PLOT DATE	2/20/2014
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

STATE OF ALASKA
JOHN R. HANSON
CE 13144
REGISTERED
PROFESSIONAL ENGINEER
49TH

WHPacific
300 West 31st Avenue
Anchorage, AK 99503
907-339-6500 Fax 907-339-5327
www.whpacific.com

[DATE: 2/20/2014 2:40 PM] [AUTHOR: jhanson] [PLOTTER: CutePDF Writer] [STYLE: WHP-Standard.ctb]
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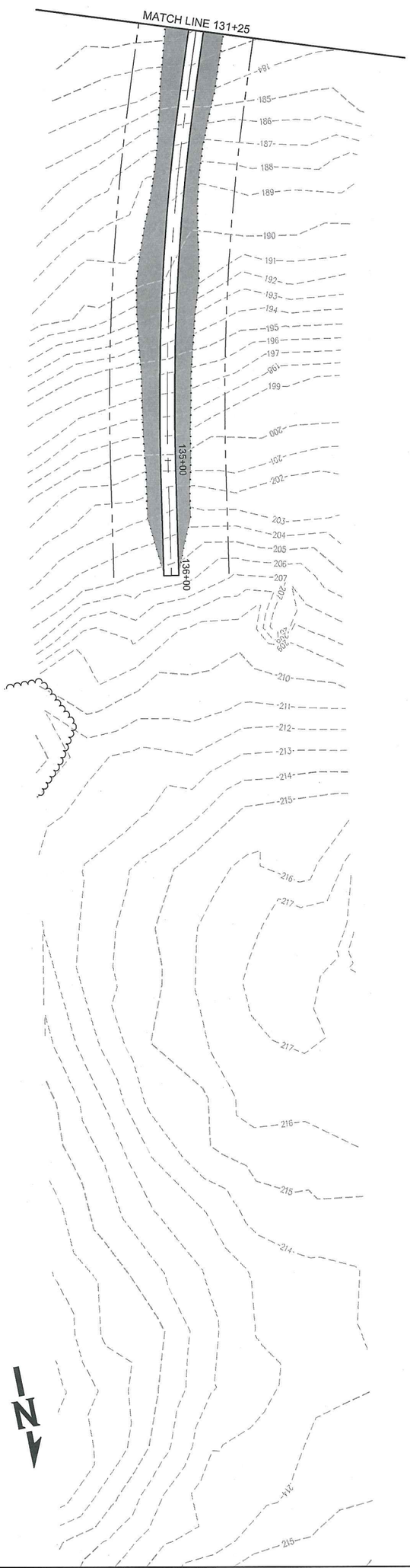


SHEET NUMBER Q6 of 6

EROSION & SEDIMENT CONTROL PLAN

MANIILAQ ASSOCIATION
SHUNGNAK LANDFILL ROAD

PROJECT NUMBER	DRAWING FILE NAME	SCALE
524412	524412-C-Q4-Q6 ESCP	1"=50'

SHEET INFO	
DESIGNED	JRH
DRAWN	JRH
CHECKED	ELM
APPROVED	ELM
LAST EDIT	2/20/2014
PLOT DATE	2/20/2014
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JRH	2/19/14	REDUCED ROAD WIDTH

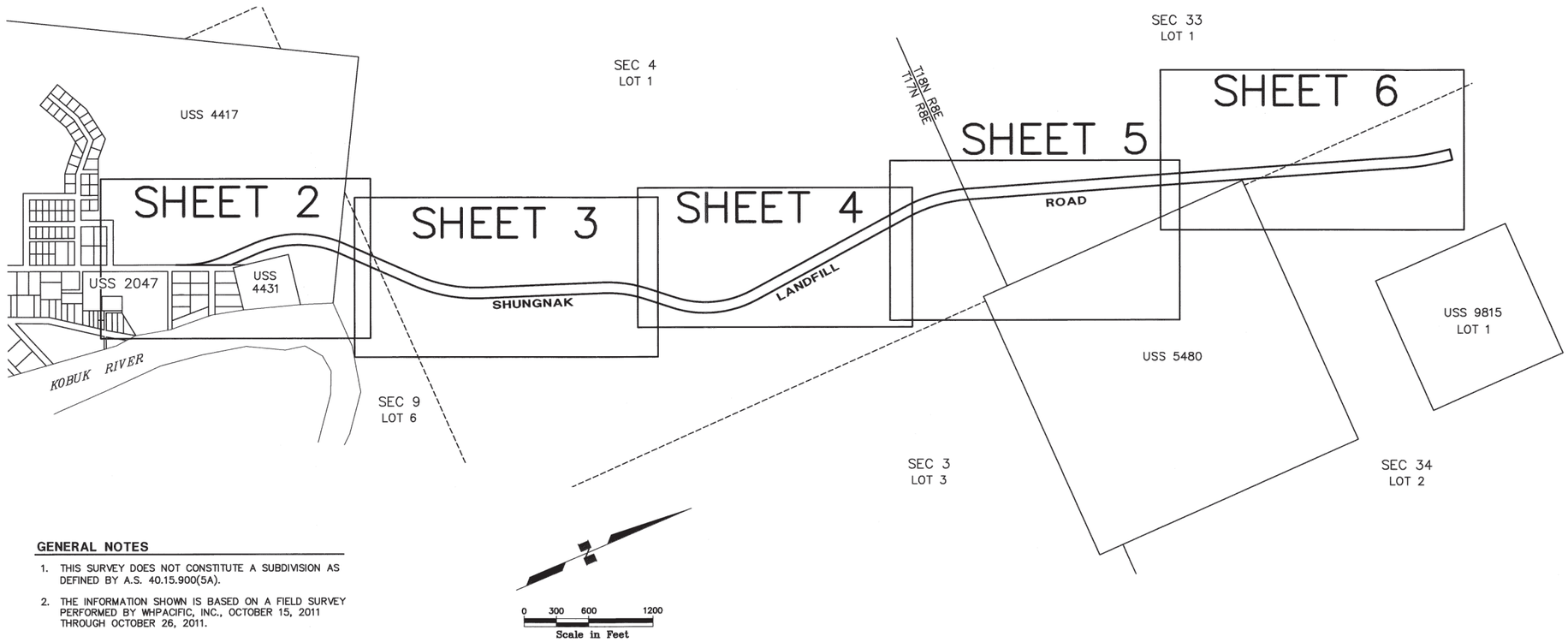
STATE OF ALASKA — 49TH — JOHN R. HANSON — CE 13144 — PROFESSIONAL ENGINEER

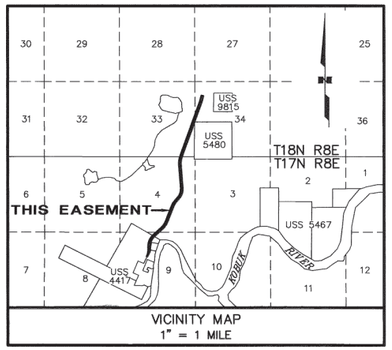
WHPacific
300 West 31st Avenue
Anchorage, AK 99503
907-339-6500 Fax 907-339-5327
www.whpacific.com

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R1	R7

NATIVE VILLAGE OF SHUNGNAK

RIGHT OF WAY EASEMENT
SHUNGNAK LANDFILL ROAD : BIA ROUTE 1003





GENERAL NOTES

1. THIS SURVEY DOES NOT CONSTITUTE A SUBDIVISION AS DEFINED BY A.S. 40.15.900(5A).
2. THE INFORMATION SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY WHPACIFIC, INC., OCTOBER 15, 2011 THROUGH OCTOBER 26, 2011.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR, AND THAT THIS PLAT REPRESENTS THE SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THE MONUMENTS SHOWN THEREON ACTUALLY EXIST AS LOCATED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT.

TALLAK D. MAAKESTAD, LS-9235
WHPACIFIC INC.
300 W. 31st AVE.
ANCHORAGE, AK 99503

2/13/2012
DATE

STATE OF ALASKA — TALLAK D. MAAKESTAD — No. LS-9235 — REGISTERED PROFESSIONAL LAND SURVEYOR — 2/13/12

BOROUGH APPROVAL CERTIFICATE

THE NORTHWEST ARCTIC BOROUGH HERBY APPROVES THE EASEMENT SHOWN HEREON.

4/26/2012
DATE

NAME: Thomas Okleasik

TITLE: Planning Director

BY APPROVAL OF THE PLAT, THE NORTHWEST ARCTIC BOROUGH HEREBY ACCEPTS FOR PUBLIC USES AND FOR PUBLIC PURPOSES THE RIGHT-OF-WAY EASEMENT SHOWN HEREON. THE ACCEPTANCE OF LANDS FOR PUBLIC USE OR PUBLIC PURPOSE DOES NOT OBLIGATE THE PUBLIC OR GOVERNING BODY TO CONSTRUCT, OPERATE OR MAINTAIN IMPROVEMENTS.

Tax Certification: this plat is not subject to taxation at the time of filing.

CERTIFICATE OF OWNERSHIP AND DEDICATION

I THE UNDERSIGNED, HEREBY CERTIFY THAT NANA REGIONAL CORPORATION IS THE OWNER OF A PORTION OF THE PROPERTY SHOWN HEREON AS RIGHT-OF-WAY EASEMENT. SAID PORTION OF LAND FALLS WITHIN U.S. PATENT NUMBERS 50-2011-0041 & 50-2011-0042, RECORDED ON DECEMBER 15, 2010, KOTZEBUE RECORDING DISTRICT, ALSO WITH U.S. PATENT NUMBER 50-2000-0260 THAT WAS RECORDED ON NOVEMBER 2, 2000, KOTZEBUE RECORDING DISTRICT. ON BEHALF OF NANA REGIONAL CORPORATION I APPROVE AND ADOPT THIS RIGHT-OF-WAY EASEMENT FOR PUBLIC USE AS SHOWN AND DESCRIBED ON THIS SURVEY.

NAME: Walter Sampson

TITLE: V.P. Lands & Regional Affairs 2-14-12
DATE

NANA REGIONAL CORPORATION INC.
P.O. BOX 49
KOTZEBUE, ALASKA 99752

NOTARY'S ACKNOWLEDGMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS
DAY OF February 14, 2012
Jeff J. Nelson
FOR NANA REGIONAL CORPORATION INC.
Ginger Douglas
NOTARY PUBLIC FOR ALASKA
1/21/16
MY COMMISSION EXPIRES

GINGER DOUGLAS — NOTARY PUBLIC — STATE OF ALASKA

CERTIFICATE OF OWNERSHIP AND DEDICATION

I THE UNDERSIGNED, HEREBY CERTIFY THAT THE CITY OF SHUNGNAK IS THE OWNER OF A PORTION OF THE PROPERTY SHOWN HEREON AS RIGHT-OF-WAY EASEMENT. SAID PORTION FALLS WITHIN LOT 4, TRACT D OF U.S. SURVEY 4417. ON BEHALF OF THE CITY OF SHUNGNAK, I APPROVE AND ADOPT THIS RIGHT-OF-WAY EASEMENT FOR PUBLIC USE AS SHOWN AND DESCRIBED ON THIS SURVEY.

NAME: Melvin Lee

TITLE: Vice-Mayor
Feb. 22, 2012
DATE

CITY OF SHUNGNAK
P.O. BOX 59
SHUNGNAK, ALASKA 99773

NOTARY'S ACKNOWLEDGMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS
DAY OF February 22nd, 2012
Melvin Lee
FOR CITY OF SHUNGNAK
Darlene R Black
NOTARY PUBLIC FOR ALASKA
July 15, 2014
MY COMMISSION EXPIRES

DARLENE R. BLACK — NOTARY PUBLIC — STATE OF ALASKA

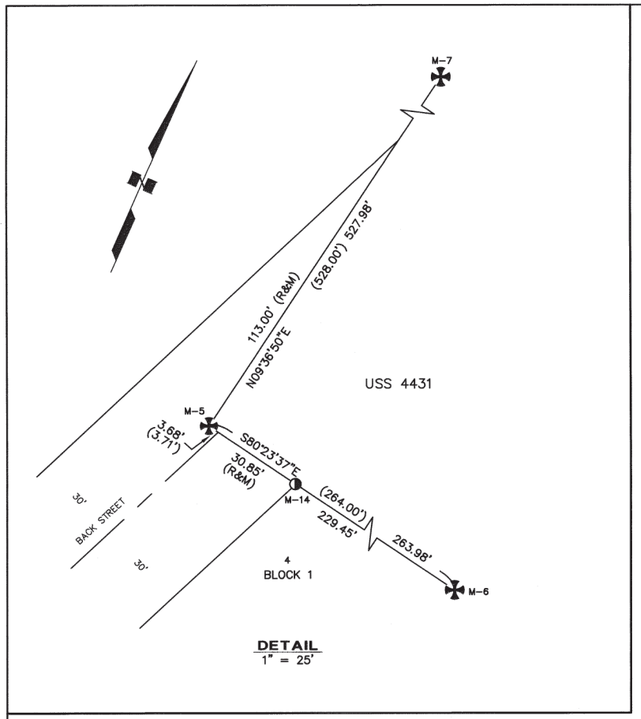
RIGHT-OF-WAY EASEMENT
SHUNGNAK LANDFILL ROAD
LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., & LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
27.406 ACRES MORE OR LESS

WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012		SCALE: 1" = 600'
DRAWN: CAW		SHEET 1 of 7
CHECKED: TDM	F.D. BK.: 524412	

Kotzebue 2012-3

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R2	R7



0 50 100 200
Scale in Feet

LEGEND

- FOUND 3-1/4" BLM MONUMENT
- FOUND 5/8" REBAR
- FOUND COPPERWELD MONUMENT
- SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- LIMIT OF FILL SLOPE
- LIMIT OF CUT SLOPE
- RIGHT-OF-WAY EASEMENT
- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7
- ( ) RECORD MEASUREMENT PER BLM RECTANGULAR SURVEY PLAT OR U.S. SURVEY PLAT
- (R&H) RECORD & HELD
- (R&M) RECORD & MEASURED
- K.R.D. KOTZEBUE RECORDING DISTRICT

PACIFIC SLR # 2011 9235 LS TYPICAL

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C1	22°41'00"	950.00'	376.10'	190.55'	373.65'	S11°25'41"W
C2	4°55'55"	1000.00'	86.08'	43.07'	86.05'	N02°33'08"E
C3	46°50'49"	1050.00'	858.52'	454.89'	834.80'	S23°30'36"W
C4	46°50'49"	1000.00'	817.63'	433.23'	795.05'	N23°30'36"E
C5	46°50'49"	950.00'	776.75'	411.56'	755.30'	N23°30'36"E
C6	45°55'10"	950.00'	761.37'	402.46'	741.16'	N23°02'46"E
C7	45°03'07"	1000.00'	786.30'	414.74'	766.20'	N22°36'44"E
C8	44°16'13"	1050.00'	811.29'	427.11'	791.26'	N22°13'17"E
C9	2°34'36"	1050.00'	47.22'	23.61'	47.22'	N45°38'42"E
C10	1°47'42"	1000.00'	31.33'	15.67'	31.33'	N46°02'09"E
C11	0°55'39"	950.00'	15.38'	7.69'	15.38'	S46°28'10"W

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

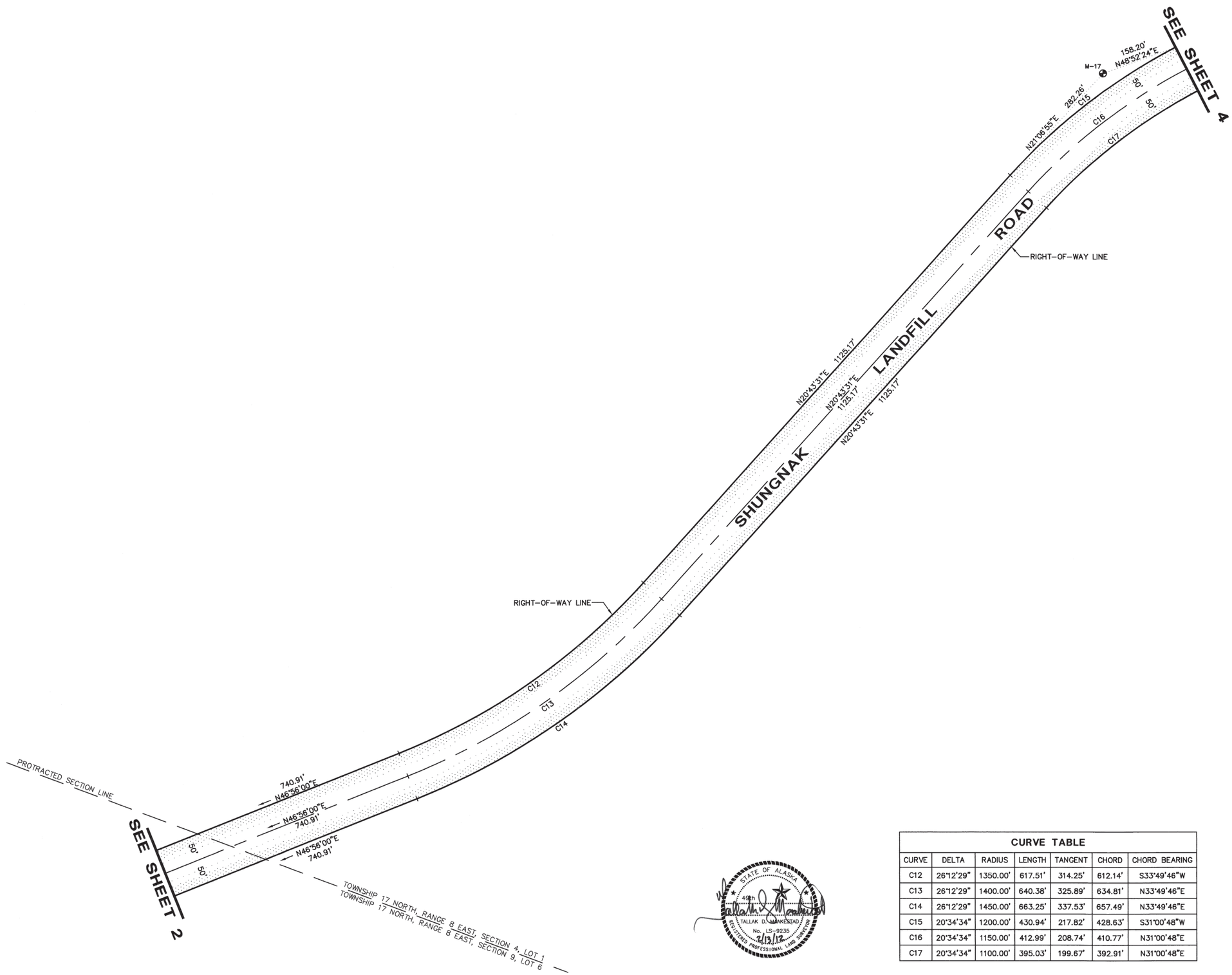
LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., &
LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
27.406 ACRES MORE OR LESS

WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012	SCALE: 1" = 100'
DRAWN: CAW	SHEET 2 of 7
CHECKED: TDM F.D. BK.: 524412	

Katzebue 2012-3

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R3	R7



LEGEND

- ✚ FOUND 3-1/4" BLM MONUMENT
- ○ FOUND 5/8" REBAR
- ◑ FOUND COPPERWELD MONUMENT
- ◉ SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT
- ——— EXISTING PROPERTY LINE
- – – – – EXISTING EASEMENT
- ····· LIMIT OF FILL SLOPE
- — — LIMIT OF CUT SLOPE
- ▒▒▒▒ RIGHT-OF-WAY EASEMENT
- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7
- ( ) RECORD MEASUREMENT PER BLM RECTANGULAR SURVEY PLAT OR U.S. SURVEY PLAT
- (R&H) RECORD & HELD
- (R&M) RECORD & MEASURED
- K.R.D. KOTZEBUE RECORDING DISTRICT

WHPACIFIC SLR # 2011 9235 LS
TYPICAL

CURVE TABLE						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C12	26°12'29"	1350.00'	617.51'	314.25'	612.14'	S33°49'46"W
C13	26°12'29"	1400.00'	640.38'	325.89'	634.81'	N33°49'46"E
C14	26°12'29"	1450.00'	663.25'	337.53'	657.49'	N33°49'46"E
C15	20°34'34"	1200.00'	430.94'	217.82'	428.63'	S31°00'48"W
C16	20°34'34"	1150.00'	412.99'	208.74'	410.77'	N31°00'48"E
C17	20°34'34"	1100.00'	395.03'	199.67'	392.91'	N31°00'48"E

STATE OF ALASKA
TALLAK D. MAKKESTAD
No. LS-9235
2/13/12
REGISTERED PROFESSIONAL LAND SURVEYOR

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., &
LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
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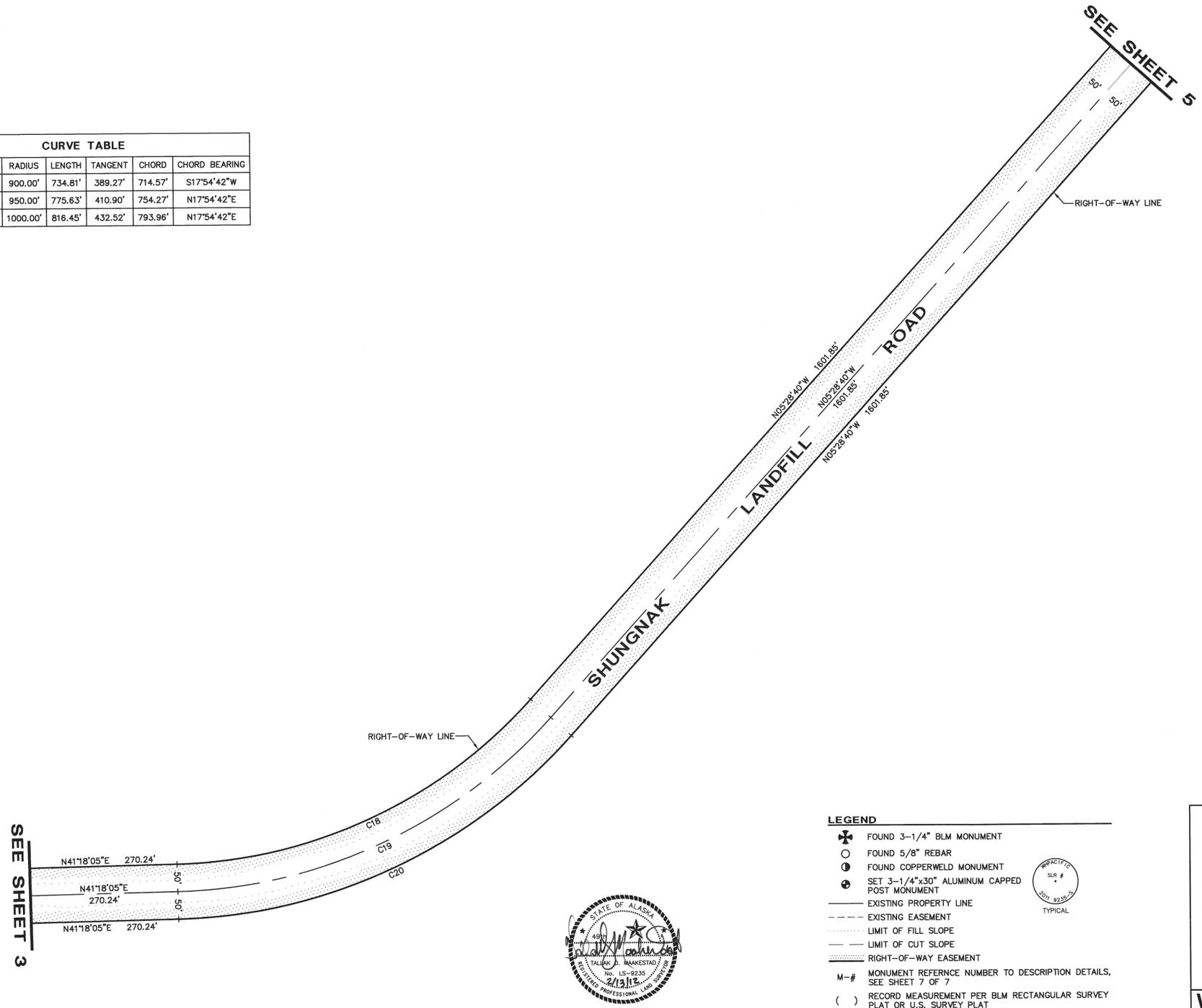
WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012	SCALE: 1" = 100'
DRAWN: CAW	SHEET 3 of 7
CHECKED: TDM F.D. BK.: 524412	

Kotzebue 2012-3

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R4	R7

CURVE TABLE						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C18	46°46'45"	900.00'	734.81'	389.27'	714.57'	S17°54'42"W
C19	46°46'45"	950.00'	775.63'	410.90'	754.27'	N17°54'42"E
C20	46°46'45"	1000.00'	816.45'	432.52'	793.96'	N17°54'42"E



STATE OF ALASKA
TALIAK D. MAKESTAD
No. LS-9235
2/13/12
REGISTERED PROFESSIONAL LAND SURVEYOR

LEGEND

- FOUND 3-1/4" BLM MONUMENT
- FOUND 5/8" REBAR
- FOUND COPPERWELD MONUMENT
- SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- LIMIT OF FILL SLOPE
- LIMIT OF CUT SLOPE
- RIGHT-OF-WAY EASEMENT
- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7
- ( ) RECORD MEASUREMENT PER BLM RECTANGULAR SURVEY PLAT OR U.S. SURVEY PLAT
- (R&H) RECORD & HELD
- (R&M) RECORD & MEASURED
- K.R.D. KOTZEBUE RECORDING DISTRICT

WHPACIFIC SLR # 2011 9235-S TYPICAL

Kotzebue 2012-3

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., & LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
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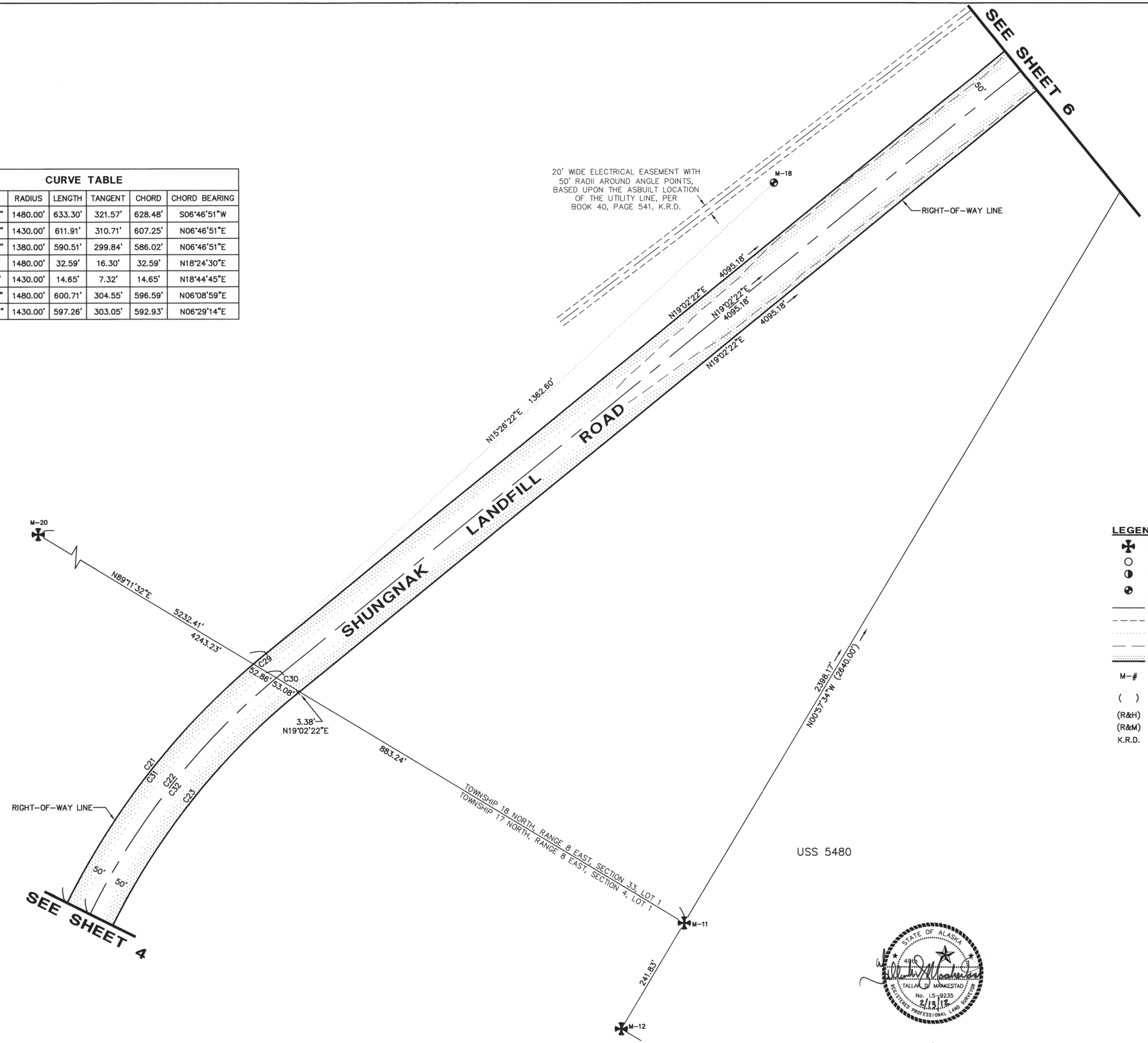
WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012		SCALE: 1" = 100'
DRAWN: CAW		SHEET 4 of 7
CHECKED: TDM	F.D. BK.: 524412	

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R5	R7

CURVE TABLE						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C21	24°31'02"	1480.00'	633.30'	321.57'	628.48'	S06°46'51"W
C22	24°31'02"	1430.00'	611.91'	310.71'	607.25'	N06°46'51"E
C23	24°31'02"	1380.00'	590.51'	299.84'	586.02'	N06°46'51"E
C29	1°15'42"	1480.00'	32.59'	16.30'	32.59'	N18°24'30"E
C30	0°35'13"	1430.00'	14.65'	7.32'	14.65'	N18°44'45"E
C31	23°15'19"	1480.00'	600.71'	304.55'	596.59'	N06°08'59"E
C32	23°55'49"	1430.00'	597.26'	303.05'	592.93'	N06°29'14"E



LEGEND

- FOUND 3-1/4" BLM MONUMENT
- FOUND 5/8" REBAR
- FOUND COPPERWELD MONUMENT
- SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT
- EXISTING PROPERTY LINE
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- LIMIT OF FILL SLOPE
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- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7
- ( ) RECORD MEASUREMENT PER BLM RECTANGULAR SURVEY PLAT OR U.S. SURVEY PLAT
- (R&H) RECORD & HELD
- (R&M) RECORD & MEASURED
- K.R.D. KOTZEBUE RECORDING DISTRICT

WHPACIFIC INCORPORATED LS-9235 TYPICAL

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., &
LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
27.406 ACRES MORE OR LESS

STATE OF ALASKA — 4915 — TALLAK D. MAKKESTAD — No. LS-9235 — 2/13/12 — REGISTERED PROFESSIONAL LAND SURVEYOR

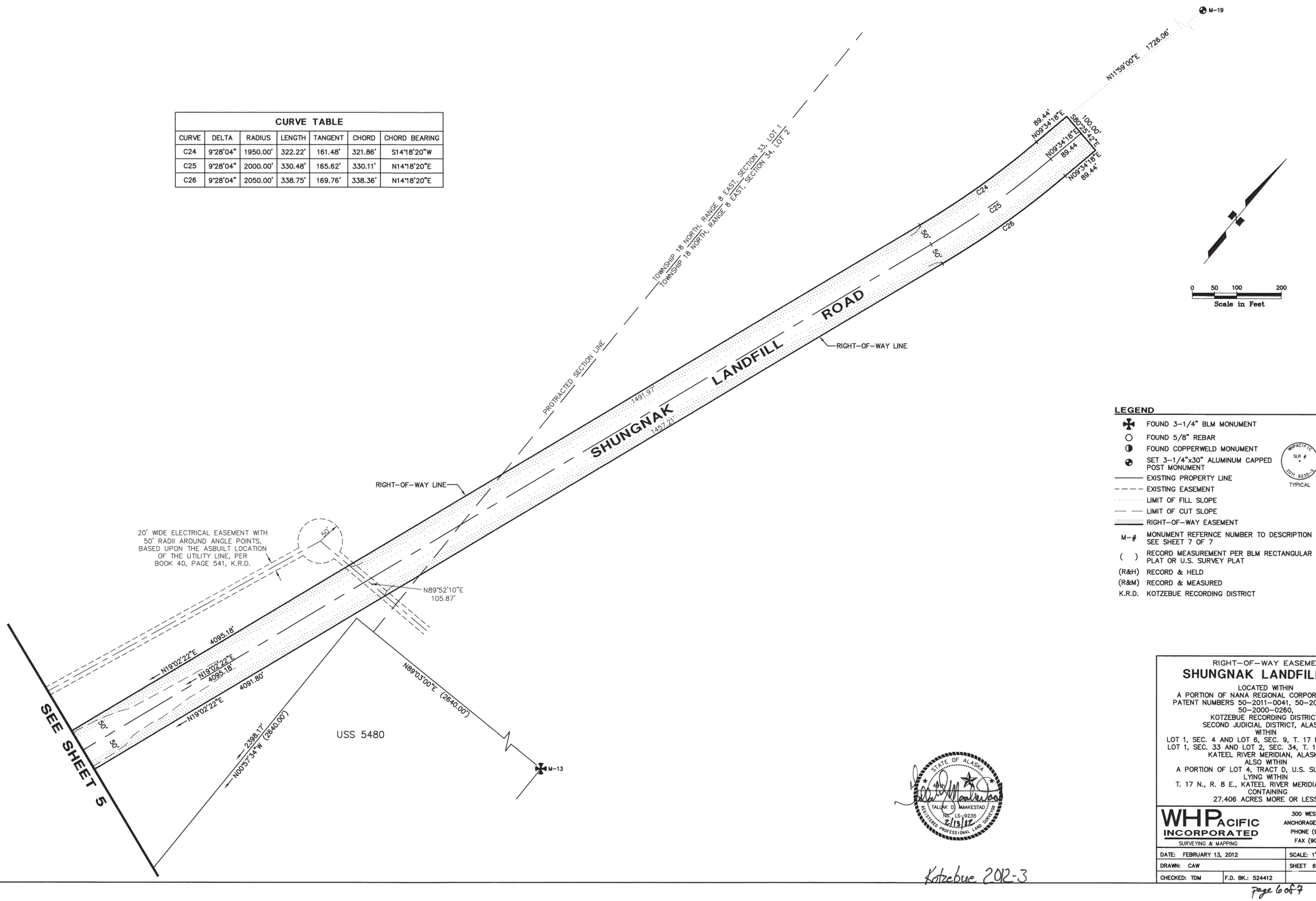
WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012		SCALE: 1" = 100'
DRAWN: CAW		SHEET 5 of 7
CHECKED: TDM	F.D. BK.: 524412	

Kotzebue 2012-3

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R6	R7

CURVE TABLE						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C24	9°28'04"	1950.00'	322.22'	161.48'	321.86'	S14°18'20"W
C25	9°28'04"	2000.00'	330.48'	165.62'	330.11'	N14°18'20"E
C26	9°28'04"	2050.00'	338.75'	169.76'	338.36'	N14°18'20"E



LEGEND

- FOUND 3-1/4" BLM MONUMENT
- FOUND 5/8" REBAR
- FOUND COPPERWELD MONUMENT
- SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- LIMIT OF FILL SLOPE
- LIMIT OF CUT SLOPE
- RIGHT-OF-WAY EASEMENT
- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7
- ( ) RECORD MEASUREMENT PER BLM RECTANGULAR SURVEY PLAT OR U.S. SURVEY PLAT
- (R&H) RECORD & HELD
- (R&M) RECORD & MEASURED
- K.R.D. KOTZEBUE RECORDING DISTRICT

WHPACIFIC INCORPORATED LS-9235 2011 TYPICAL

STATE OF ALASKA TALLAK D. MAAKESTAD No. LS-9235 REGISTERED PROFESSIONAL LAND SURVEYOR 2/13/12

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., &
LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
27.406 ACRES MORE OR LESS

WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012		SCALE: 1" = 100'
DRAWN: CAW		SHEET 6 of 7
CHECKED: TDM	F.D. BK.: 524412	

Kotzebue 202-3

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R7	R7

MONUMENT DETAILS AND DESCRIPTIONS

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS 0.2' ABOVE GRADE, FIRMLY SET, CAP LOOSE – HELD.

M-2

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS FLUSH WITH GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-3

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS 0.1' BELOW GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-4

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS LEANING WEST, PLUMBED AND FIRMED UP TO 0.3' ABOVE GRADE. MONUMENT IS N80°59'07" 0.84' FROM COMPUTED CENTERLINE POSITION – NOT HELD.

M-5

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" IRON POST. THE MONUMENT WAS LEANING EAST, PLUMBED AND FIRMED UP TO 1.2' BELOW GRADE – HELD.

M-6

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS 0.2' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-7

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" IRON POST. THE MONUMENT IS 0.5' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-8

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS 0.3' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-9

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT WAS LEANING WEST, PLUMBED AND FIRMED UP TO 0.3' ABOVE GRADE – HELD.

M-10

FOUND A 3-1/4" DIA. BRASS CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. IRON POST. THE MONUMENT IS 0.2' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-11

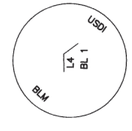
FOUND A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 5/8" DIA. ALUMINUM ROD. THE MONUMENT IS 1.0' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-12

FOUND A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" ALUMINUM POST. THE MONUMENT IS 0.7' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

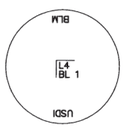
M-13

FOUND A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" DIA. ALUMINUM POST. THE MONUMENT IS 0.2' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.



M-14

FOUND A COPPERWELD WITH A 2" CAP STAMPED AS SHOWN, ON A 5/8" ROD. THE MONUMENT WAS 1.5' ABOVE GRADE, POUNDED DOWN TO 0.6' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION. MONUMENT IS S74°52'10"W 0.17' FROM COMPUTED POSITION – NOT HELD.



M-15

FOUND A COPPERWELD WITH A 2" CAP STAMPED AS SHOWN, ON A 5/8" ROD. THE MONUMENT IS 1.1' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.

M-16

SET A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" X 26" ALUMINUM POST. SET FIRMLY AT 0.5' BELOW GRADE WITH MAGNET INSIDE AND CARSONITE POST 0.4' WEST.

M-17

SET A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" X 26" ALUMINUM POST. SET FIRMLY 0.2' BELOW GRADE WITH MAGNET INSIDE AND CARSONITE POST 0.4' NORTHWEST.

M-18

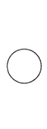
SET A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" X 26" ALUMINUM POST. SET FIRMLY 0.5' BELOW GRADE WITH MAGNET INSIDE AND CARSONITE POST 0.5' WEST.

M-19

SET A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" X 26" ALUMINUM POST. SET FIRMLY AT 0.5' BELOW GRADE WITH MAGNET INSIDE AND CARSONITE POST 0.4' WEST.

M-20

FOUND A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 5/8" DIA. ALUMINUM ROD. THE MONUMENT IS 2.9' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD.



M-21

FOUND A 5/8" REBAR, NO CAP, LEANING EASTERLY, S66°48'46"E 0.22' FROM COMPUTED POSITION – HELD FOR NORTHERLY LINE OF SECOND STREET ONLY.

GENERAL NOTES

1. EASEMENTS OF RECORD OTHER THAN THOSE SHOWN ON FAIRBANKS TITLE AGENCY "CERTIFICATE TO PLAT", ORDER NO. FTA76817, DATED DECEMBER 6, 2011, ARE NOT SHOWN HEREON.

AREA COORDINATE SYSTEM - SHUNGNAK LANDFILL ROAD

HORIZONTAL CONTROL

THE PROJECT COORDINATE SYSTEM IS A LOCAL SURFACE GRID COORDINATE SYSTEM IN US SURVEY FEET.

THE BASIS OF COORDINATES IS A 3-1/4" ALUMINUM CAP ON A 2-1/2" ALUMINUM POST SET 0.5' BELOW GRADE STAMPED WITH THE FOLLOWING: "WHPACIFIC, SLR-1, 9235-S, 2011". THE GEODETIC POSITION OF SAID MONUMENT WAS ESTABLISHED BY AVERAGING THE OPUS VALUES OF FOUR INDEPENDENT 4 TO 9-HOUR STATIC GPS OBSERVATIONS. THE OPUS SOLUTIONS WERE BASED ON NGS CORS GPS STATIONS: KOTZEBUE WAAS CORS ARP (OTZ1), PID DK4099, BUCKLAND AK2007 CORS ARP (AC07), PID DL6684, KOTZEBUE_AK2007 CORS ARP (AB18), PID DL6675, KOBUK VALLAK20047 (AB27), PID DL,6435. SAID BASIS OF COORDINATES HAS THE FOLLOWING COORDINATES:

NAD83(2011)(EPOCH 2010.0000) GEODETIC COORDINATES (AVERAGED POSITION):
LAT.= 66 DEGREES 53 MINUTES 36.52302 SECONDS NORTH,
LONG.= 157 DEGREES 08 MINUTES 11.19424 SECONDS WEST,
ELLIPSOID HEIGHT = 168.95 US FEET
ORTHOMETRIC HEIGHT = 153.71 US FEET (NAVD88/GEOID09)

NAD83(2011)(EPOCH 2010.0000) ASPC ZONE 6 COORDINATES (PER OPUS REPORT):
4,713,497.7690 N, 1,764,524.7901 E, US Feet

PROJECT LOCAL COORDINATES: 50,000.0000 N, 70,000.0000 E, US Feet;

CONVERSION FROM ALASKA STATE PLANE ZONE 6, NAD83(2011)(EPOCH 2010.0000) US FEET TO LOCAL US FEET:

1. SCALE STATE PLANE COORDINATES USING 100000000/99990945 (Base point 0,0)
2. TRANSLATE RESULTING COORDINATES USING:
   −4,663,924.61487 N, −1,694,684.58229 E

CONVERSION FROM LOCAL US FEET TO STATE PLANE, ZONE 6, NAD83(2011)(EPOCH 2010.0000) US FEET:

1. TRANSLATE RESULTING COORDINATES USING:
   +4,663,924.61487 N, +1,694,684.58229 E
2. SCALE RESULTING COORDINATES USING 0.99990945 (Base point 0,0)

THE BEARINGS FOR THIS PROJECT ARE ALASKA STATE PLANE ZONE 6 GRID BEARINGS BASED UPON GPS OBSERVATIONS.

LOCAL COORDINATES - SHUNGNAK LANDFILL ROAD

POINT	NORTHING	EASTING	DESCRIPTION
M-1	48414.3975'	69337.2855'	FND 3-1/4" BRASS CAP MONUMENT
M-2	48588.0689'	70346.4630'	FND 3-1/4" BRASS CAP MONUMENT
M-3	48990.0402	70399.2107'	FND 3-1/4" BRASS CAP MONUMENT
M-4	49119.9835'	70094.6391'	FND 3-1/4" BRASS CAP MONUMENT
M-5	49305.4252'	70170.8757'	FND 3-1/4" BRASS CAP MONUMENT
M-6	49261.3724'	70431.1578'	FND 3-1/4" BRASS CAP MONUMENT
M-7	49825.9949'	70259.0523'	FND 3-1/4" BRASS CAP MONUMENT
M-8	49785.1327'	70499.7005'	FND 3-1/4" BRASS CAP MONUMENT
M-9	51151.5483'	68827.8465'	FND 3-1/4" BRASS CAP MONUMENT
M-10	50178.1308'	70575.0917'	FND 3-1/4" BRASS CAP MONUMENT
M-11	55862.3012'	73170.5723'	FND 3-1/4" ALUMINUM CAP MONUMENT
M-12	55620.5021'	73174.4879'	FND 3-1/4" ALUMINUM CAP MONUMENT
M-13	58303.8971'	75769.9178'	FND 3-1/4" ALUMINUM CAP MONUMENT
M-14	49299.6185'	70204.7653'	FND COPPERWELD
M-15	49135.6492'	70134.8428'	FND COPPERWELD
M-16	50000.0000'	70000.0000'	SET 3-1/4"x30" ALUMINUM CAP MONUMENT
M-17	52673.6639'	71753.0716'	SET 3-1/4"x30" ALUMINUM CAP MONUMENT
M-18	57192.7086'	72554.4049'	SET 3-1/4"x30" ALUMINUM CAP MONUMENT
M-19	61838.9439'	73980.3505'	SET 3-1/4"x30" ALUMINUM CAP MONUMENT
M-20	55788.5349'	67938.5482'	FND 3-1/4" ALUMINUM CAP MONUMENT
M-21	48767.7123	69977.8625	FND 5/8" REBAR

STATE OF ALASKA
TALLAK D. MAAKESTAD
No. LS-9235
REGISTERED PROFESSIONAL LAND SURVEYOR
2/13/12

RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042, & 50-2000-0260,
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4 AND LOT 6, SEC. 9, T. 17 N., R. 8 E., &
LOT 1, SEC. 33 AND LOT 2, SEC. 34, T. 18 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
ALSO WITHIN
A PORTION OF LOT 4, TRACT D, U.S. SURVEY 4417
LYING WITHIN
T. 17 N., R. 8 E., KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
27.406 ACRES MORE OR LESS

2012-3
Plat # Kotzebue
Rec Dist 6-4 2012
Date
Time 1:40 P M

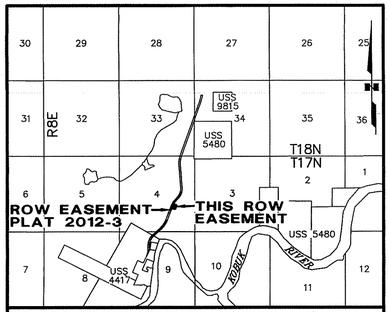
WHP PACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: FEBRUARY 13, 2012		SCALE: N/A
DRAWN: CAW		SHEET 7 of 7
CHECKED: TDM	F.D. BK.: 524412	

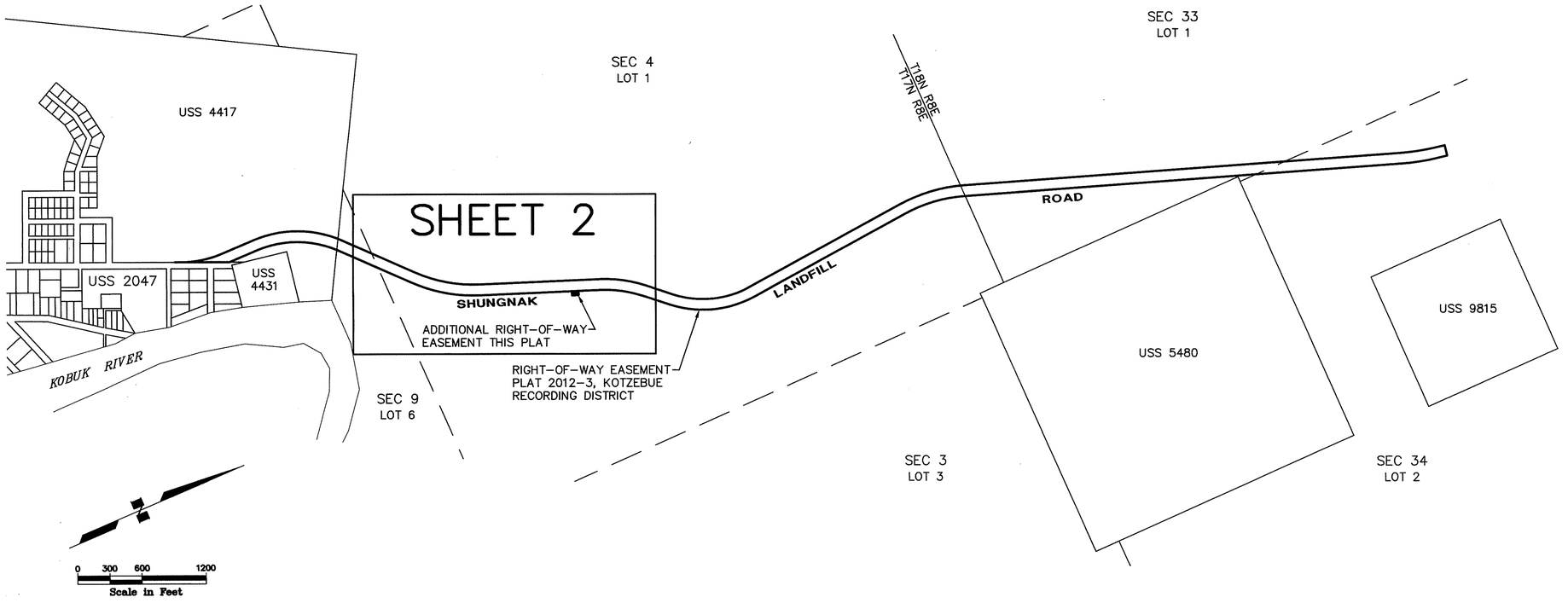
NATIVE VILLAGE OF SHUNGNAK

ADDITIONAL RIGHT OF WAY EASEMENT
SHUNGNAK LANDFILL ROAD : BIA ROUTE 1003

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R8	R9



VICINITY MAP
1" = 1 MILE



CERTIFICATE OF OWNERSHIP AND DEDICATION

I THE UNDERSIGNED, HEREBY CERTIFY THAT NANA REGIONAL CORPORATION IS THE OWNER OF THAT PORTION OF THE PROPERTY SHOWN HEREON AS ADDITIONAL RIGHT-OF-WAY EASEMENT. SAID PORTION OF LAND FALLS WITHIN U.S. PATENT NUMBERS 50-2011-0041 & 50-2011-0042, RECORDED ON DECEMBER 15, 2010, KOTZEBUE RECORDING DISTRICT. ON BEHALF OF NANA REGIONAL CORPORATION I APPROVE AND ADOPT THIS RIGHT-OF-WAY EASEMENT FOR PUBLIC USE AS SHOWN AND DESCRIBED ON THIS SURVEY.

NAME: Rosie Barr

TITLE: Vice President Lands 6/19/14
DATE

NANA REGIONAL CORPORATION INC.
P.O. BOX 49
KOTZEBUE, ALASKA 99752

NOTARY'S ACKNOWLEDGMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS
DAY OF June 19, 2014

FOR NANA REGIONAL CORPORATION INC.

Samantha Goodwin
NOTARY PUBLIC FOR ALASKA
February 17, 2017
MY COMMISSION EXPIRES

SAMANTHA GOODWIN NOTARY PUBLIC STATE OF ALASKA

GENERAL NOTES

1. THIS SURVEY DOES NOT CONSTITUTE A SUBDIVISION AS DEFINED BY A.S. 40.15.900(5A).
2. THE INFORMATION SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY WHPACIFIC, INC., OCTOBER 15, 2011 THROUGH OCTOBER 26, 2011.
3. THIS PLAT ADOPTS ADDITIONAL RIGHT-OF-WAY EASEMENT FOR SHUNGNAK LANDFILL ROAD, RECORDED AS PLAT 2012-3, KOTZEBUE RECORDING DISTRICT. REFER TO SAID PLAT 2012-3 FOR SURVEY CONTROL AND OTHER SURVEY INFORMATION.

BOROUGH APPROVAL CERTIFICATE

THE NORTHWEST ARCTIC BOROUGH HERBY APPROVES THE EASEMENT SHOWN HEREON.

_____ _____
DATE

NAME: _____

TITLE: _____

BY APPROVAL OF THE PLAT, THE NORTHWEST ARCTIC BOROUGH HEREBY ACCEPTS FOR PUBLIC USES AND FOR PUBLIC PURPOSES THE ADDITIONAL RIGHT-OF-WAY EASEMENT SHOWN HEREON. THE ACCEPTANCE OF LANDS FOR PUBLIC USE OR PUBLIC PURPOSE DOES NOT OBLIGATE THE PUBLIC OR GOVERNING BODY TO CONSTRUCT, OPERATE OR MAINTAIN IMPROVEMENTS.

TAX CERTIFICATE

_____

_____

_____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR, AND THAT THIS PLAT REPRESENTS THE SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THE MONUMENTS SHOWN THEREON ACTUALLY EXIST AS LOCATED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT.

Tallak D. Maakestad

TALLAK D. MAAKESTAD, LS-9235
WHPACIFIC INC.
300 W. 31st AVE.
ANCHORAGE, AK 99503

5/20/2014
DATE

STATE OF ALASKA
49th
TALLAK D. MAAKESTAD
No. LS-9235
5/20/2014
REGISTERED PROFESSIONAL LAND SURVEYOR

ADDITIONAL RIGHT-OF-WAY EASEMENT
SHUNGNAK LANDFILL ROAD
LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4, T. 17 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
0.054 ACRES MORE OR LESS

WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: MAY 20, 2014		SCALE: 1" = 600'
DRAWN: KJB		SHEET 1 of 2
CHECKED: TDM	F.D. BK.: 524412	

PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
BIA ROUTE 1003	2011	R9	R9

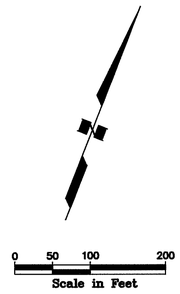
MONUMENT DETAILS AND DESCRIPTIONS

M-20

FOUND A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 5/8" DIA. ALUMINUM ROD. THE MONUMENT IS 2.9' ABOVE GRADE, FIRMLY SET IN GOOD CONDITION – HELD. SEE PLAT 2012-3, K.R.D. FOR ADDITIONAL INFORMATION.

M-17

SET A 3-1/4" DIA. ALUMINUM CAP STAMPED AS SHOWN, ON A 2-1/2" X 28" ALUMINUM POST. SET FIRMLY 0.2' BELOW GRADE WITH MAGNET INSIDE AND CARSONITE POST 0.4' NORTHWEST. SEE PLAT 2012-3, K.R.D. FOR ADDITIONAL INFORMATION.



LEGEND

- FOUND 3-1/4" BLM MONUMENT
- FOUND 5/8" REBAR
- FOUND COPPERWELD MONUMENT
- SET 3-1/4"x30" ALUMINUM CAPPED POST MONUMENT

TYPICAL

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- LIMIT OF FILL SLOPE
- LIMIT OF CUT SLOPE
- RIGHT-OF-WAY EASEMENT PER PLAT 2012-3
- M-# MONUMENT REFERNCE NUMBER TO DESCRIPTION DETAILS, SEE SHEET 7 OF 7, PLAT 2012-3, K.R.D.
- K.R.D. KOTZEBUE RECORDING DISTRICT
- ADDITIONAL RIGHT-OF-WAY EASEMENT THIS PLAT
- ROW RIGHT-OF-WAY

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
C12	26°12'29"	1350.00'	617.51'	314.25'	612.14'	S33°49'46"W
C13	26°12'29"	1400.00'	640.38'	325.89'	634.81'	N33°49'46"E
C14	26°12'29"	1450.00'	663.25'	337.53'	657.49'	N33°49'46"E
C15	20°34'34"	1200.00'	430.94'	217.82'	428.63'	S31°00'48"W
C16	20°34'34"	1150.00'	412.99'	208.74'	410.77'	N31°00'48"E
C17	20°34'34"	1100.00'	395.03'	199.67'	392.91'	N31°00'48"E

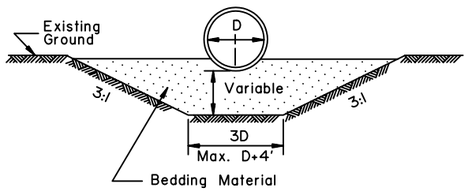
ADDITIONAL RIGHT-OF-WAY EASEMENT

SHUNGNAK LANDFILL ROAD

LOCATED WITHIN
A PORTION OF NANA REGIONAL CORPORATION, INC.
PATENT NUMBERS 50-2011-0041, 50-2011-0042
KOTZEBUE RECORDING DISTRICT,
SECOND JUDICIAL DISTRICT, ALASKA,
WITHIN
LOT 1, SEC. 4, T. 17 N., R. 8 E.,
KATEEL RIVER MERIDIAN, ALASKA
CONTAINING
0.054 ACRES MORE OR LESS

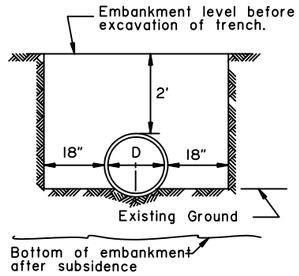
WHPACIFIC INCORPORATED
SURVEYING & MAPPING
300 WEST 31st AVENUE
ANCHORAGE, ALASKA 99503
PHONE (907) 339-6500
FAX (907) 339-5327

DATE: MAY 20, 2014	SCALE: 1" = 100'
DRAWN: KJB	SHEET 2 of 2
CHECKED: TDM F.D. BK.: 524412	

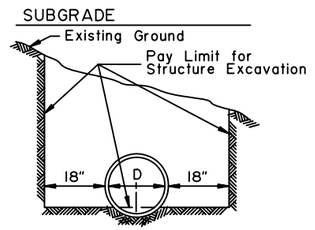


TYPE "A"
FOUNDATION STABILIZATION

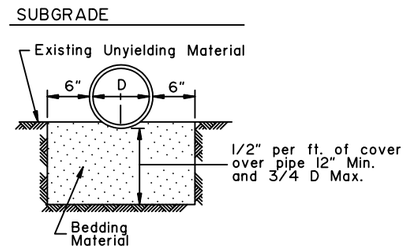
To be used in unstable areas as directed by the Engineer.



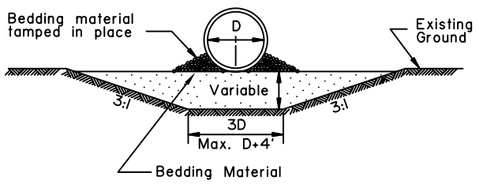
TYPE "B"



TYPE "C"

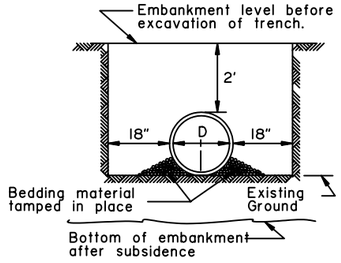


TYPE "D"
ROCK OR UNYIELDING MATERIAL

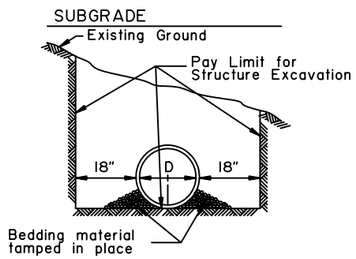


'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION

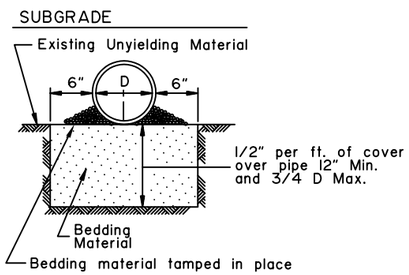
To be used in unstable areas as directed by the Engineer.



'ALTERNATE'
TYPE "B"



'ALTERNATE'
TYPE "C"

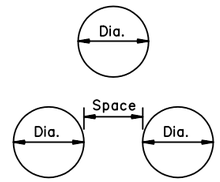


'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

GENERAL NOTES:

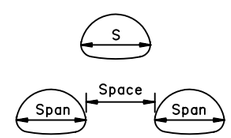
1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

D = Nominal Pipe Diameter



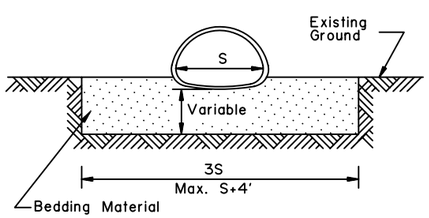
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Dia. of pipe or 3', whichever is less.

S = Nominal Pipe Arch Span



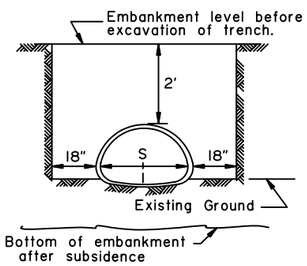
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

CULVERT PIPE

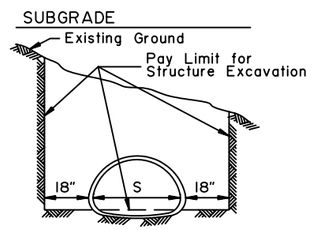


TYPE "A"
FOUNDATION STABILIZATION

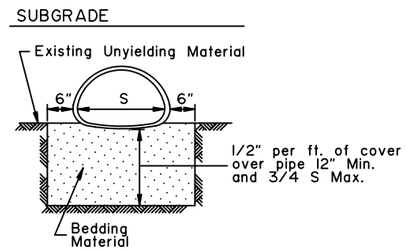
To be used in unstable areas as directed by the Engineer.



TYPE "B"



TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

ARCH

REVISIONS		
Date	Description	By
12/1/87	*Delete ref. to Specs.*	*Gdo*
4/1/93	*Delete Alt. Arch*	*Gdo*

State of Alaska
Department of Transportation
& Public Facilities

CULVERT PIPE & ARCH INSTALLATION DETAILS

APPROVED
Loren L. Rasmussen CE-2295
Date 7/15/82

D-01.02

D-04.21

Minimum & Maximum Cover For 2 2/3" x 1/2" Aluminum Pipe

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	94	12	100+	12	100+	12	100+	12	100+
18	12	75	12	94	12	100+	12	100+	12	100+
21	12	65	12	82	12	100+	12	100+	12	100+
24	12	56	12	71	12	99	12	100+	12	100+
27	12	48	12	63	12	89	12	100+	12	100+
30			12	56	12	79	12	100+	12	100+
36			12	47	12	66	12	85	12	100+
42			12	55	12	56	12	73	12	100+
48			12	47	12	49	12	63	12	78
54					15	43	15	56	15	69
60							15	50	15	62
66							18	44	18	56
72									18	45

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
30	12	52	12	65						
36	12	43	12	54	12	100+	12	100+	12	100+
42	12	36	12	46	12	65	12	100+	12	100+
48	12	32	12	40	12	57	12	73	12	100+
54	15	28	15	35	15	50	12	65	12	100+
60	15	25	15	32	15	45	15	58	15	72
66	18	23	18	28	18	41	18	53	18	65
72	18	21	18	26	18	37	18	48	18	59
78			21	24	21	34	21	44	21	55
84					21	31	21	41	21	57
90					24	29	24	38	21	47
96					24	27	24	36	24	44
102							24	33	24	41
108							24	31	24	39
114									24	37
120									24	35

Minimum & Maximum Cover For 9" x 2 1/2" Aluminum Structural Plate Pipe *

GAGE	0.100"		0.125"		0.150"		0.175"		0.200"		0.225"		0.250"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
60	12	29 31	12	38 45	12	49 60	12	58 70	12	58 81	12	58 92	12	58 100+
66	12	26 28	12	35 41	12	44 54	12	53 64	12	53 74	12	53 84	12	53 94
72	13	24 25	12	32 37	12	41 50	12	48 58	12	48 67	12	48 77	12	48 86
78	14	22 23	12	29 35	12	37 46	12	45 54	12	45 62	12	45 71	12	45 79
84	15	20 22	13	27 32	12	35 42	12	41 50	12	41 58	12	41 66	12	41 73
90	16	19 20	14	25 30	13	32 40	12	39 47	12	39 54	12	39 61	12	39 68
96	17	18 19	15	24 28	14	30 37	13	36 44	12	36 50	12	36 57	12	36 64
102	18	17 18	16	22 26	15	29 35	14	34 41	13	34 47	13	34 54	13	34 60
108	19	16 17	17	21 25	16	27 33	14	32 39	14	32 45	14	32 51	14	32 57
114	20	15 16	18	20 23	16	25 31	15	30 37	15	30 42	15	30 48	15	30 54
120	21	14 15	19	19 22	17	24 30	16	29 35	15	29 40	15	29 46	15	29 51
126	22	13 14	20	18 21	18	23 28	17	27 33	16	27 38	16	27 44	16	27 49
132	23	13 14	21	17 20	19	22 27	18	26 32	17	26 37	17	26 42	17	26 47
138	24	12 13	22	16 19	20	21 26	18	25 30	18	25 35	18	25 40	18	25 44
144	25	12 12	22	16 18	21	20 25	19	24 29	18	24 33	18	24 38	18	24 43
150			23	15 18	21	19 24	20	23 28	19	23 32	19	23 36	19	23 41
156			24	14 17	22	18 23	21	22 27	20	22 31	20	22 35	20	22 39
162					23	18 22	21	21 26	21	21 30	21	21 34	21	21 38
168					24	17 21	22	20 25	21	20 29	21	20 33	21	20 36
174					25	17 20	23	20 24	22	20 28	22	20 31	22	20 35
180							24	19 23	23	19 27	23	19 30	23	19 34

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.

58
100+

Upper figure for pipe with aluminum bolts. (FOR TABLE ABOVE ONLY.)
Lower figure for pipe with galvanized steel bolts.

GENERAL NOTES:

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Aluminum Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⓓ
17 x 13	3	0.060	12	13	20
21 x 15	3	0.060	12	12	19
24 x 18	3	0.060	12	11	16
28 x 20	3	0.075	12	10	16
35 x 24	3	0.075	12	9	14
42 x 29	3 1/2	0.105	12	7	13
49 x 33	4	0.105	15	6	12
57 x 38	5	0.135	15	6	12
64 x 43	6	0.135	18	6	12
71 x 47	7	0.164	18	6	12

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⓓ
40 x 31	5	0.075	30	8	12
46 x 36	6	0.075	24	8	13
53 x 41	7	0.075	24	8	13
60 x 46	8	0.075	24	13	20
66 x 51	9	0.075	18	13	20
73 x 55	12	0.075	18	16	24
81 x 59	14	0.105	18	14	22
87 x 63	14	0.105	18	13	20
95 x 67	16	0.105	18	12	18
103 x 71	16	0.135	24	11	17
112 x 75	18	0.164	24	10	16
117 x 79	18	0.164	24	10	15

Minimum & Maximum Cover For 9" x 2 1/2" Aluminum Structural Plate Pipe-Arch*

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (ft)	Max. Cover in Feet For Soil Bearing Capacity of: 2 Tons/ft²	3 Tons/ft²
5 - 11 x 5 - 5	31.8	0.100	2	24**	24**
6 - 11 x 5 - 9	31.8	0.100	2	22**	22**
7 - 3 x 5 - 11	31.8	0.100	2	20**	20**
7 - 9 x 6 - 0	31.8	0.100	2	28**	18 **
8 - 5 x 6 - 3	31.8	0.100	2	17 **	17 **
9 - 3 x 6 - 5	31.8	0.100	2	15 **	15 **
10 - 3 x 6 - 9	31.8	0.100	2	14 **	14 **
10 - 9 x 6 - 10	31.8	0.100	2	13 **	13 **
11 - 5 x 7 - 1	31.8	0.100	2	12 **	12 **
12 - 7 x 7 - 5	31.8	0.125	2	14	16 **
12 - 11 x 7 - 6	31.8	0.150	2	13	14 **
13 - 1 x 8 - 2	31.8	0.150	2	13	18 **
13 - 11 x 8 - 5	31.8	0.150	2	12	17 **
14 - 8 x 9 - 8	31.8	0.175	2	12	18
15 - 4 x 10 - 0	31.8	0.175	2	11	17
16 - 1 x 10 - 4	31.8	0.200	2	10	16
16 - 9 x 10 - 8	31.8	0.200	2.17	10	15
17 - 3 x 11 - 0	31.8	0.225	2.25	10	15
18 - 0 x 11 - 4	31.8	0.255	2.25	9	14
18 - 8 x 11 - 8	31.8	0.250	2.33	9	14

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.
**Fill limited by the seam strength of the bolts. 3/4" dia. bolts per foot.

METAL THICKNESSES & GAGES

ALUMINUM	GAGE NO. (For Info Only)
0.060	16
0.075	14
0.105	12
0.135	10
0.164	8

ⓓ This column shall not be used unless specified on the plans or approved by the Regional Geotechnical Engineer.

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4	LRG

Sheet 1 of 4

State of Alaska
Department of Transportation & Public Facilities

PIPE AND ARCH TABLES

APPROVED
STATE OF ALASKA 49TH
Lars R. Gregovich
CE-8065
REGISTERED PROFESSIONAL ENGINEER

Date 10/31/03

D-04.21

D-04.21

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	100+	12	100+	12	100+	12	100+	12	100+
18	12	100+	12	100+	12	100+	12	100+	12	100+
21	12	100+	12	100+	12	100+	12	100+	12	100+
24	12	100+	12	100+	12	100+	12	100+	12	100+
27	12	100+	12	100+	12	100+	12	100+	12	100+
30	12	99	12	100+	12	100+	12	100+	12	100+
36	12	83	12	100+	12	100+	12	100+	12	100+
42	12	71	12	88	12	100+	12	100+	12	100+
48	12	62	12	77	12	100+	12	100+	12	100+
54			12	66	12	93	12	100+	12	100+
60					12	79	12	100+	12	100+
66					12	68	12	88	12	100+
72							12	75	12	93
78									12	79
84									12	66

Minimum & Maximum Cover For 3" x 1" Steel Pipe

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
36	12		12		12	100+	12	100+	12	100+
42	12		12		12	100+	12	100+	12	100+
48	12		12	76	12	100+	12	100+	12	100+
54	12	63	12	79	12	100+	12	100+	12	100+
60	12	56	12	71	12	99	12	100+	12	100+
66	12	52	12	64	12	90	12	100+	12	100+
72	12	47	12	59	12	82	12	100+	12	100+
78	12	44	12	54	12	77	12	98	12	100+
84	12	41	12	51	12	71	12	92	12	100+
90	12	37	12	47	12	67	12	86	12	100+
96	12	35	12	44	12	62	12	80	12	98
102	18	33	18	42	18	59	18	76	18	93
108			18	40	18	55	18	71	18	87
114			18	36	18	51	18	66	18	80
120			18	34	18	46	18	61	18	75
126					18	44	18	56	18	70
132					18	41	18	53	18	64
138					18	37	18	49	18	60
144							18	44	18	55
150									18	52

Minimum & Maximum Cover For 5" x 1" Steel Pipe*

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
36	12	81	12	90	12	100+	12	100+	12	100+
42	12	71	12	77	12	100+	12	100+	12	100+
48	12	62	12	68	12	100+	12	100+	12	100+
54	12	56	12	70	12	98	12	100+	12	100+
60	12	50	12	63	12	88	12	100+	12	100+
66	12	46	12	57	12	80	12	100+	12	100+
72	12	42	12	52	12	73	12	95	12	100+
78	12	39	12	48	12	68	12	87	12	100+
84	12	36	12	45	12	63	12	81	12	99
90	12	33	12	42	12	59	12	76	12	93
96	12	31	12	39	12	55	12	71	12	87
102	18	29	18	37	18	52	18	67	18	82
108			18	35	18	49	18	63	18	77
114			18	32	18	45	18	58	18	71
120			18	30	18	41	18	54	18	66
126					18	39	18	50	18	62
132					18	36	18	47	18	57
138					18	33	18	43	18	53
144							18	39	18	49
150									19	47

*Table for pipe with helical lockseams or helical welded seams ONLY.

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe**

GAGE	ALL	0.111"	0.140"	0.170"	0.188"	0.218"	0.249"	0.280"
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
60	12	46	68	90	100+	100+	100+	100+
66	12	42	62	81	93	100+	100+	100+
72	12	38	57	75	86	100+	100+	100+
78	12	35	52	69	79	95	100+	100+
84	12	33	49	64	73	88	100+	100+
90	12	31	45	60	68	82	97	100+
96	12	29	43	56	64	77	91	100+
102	18	27	40	52	60	73	86	94
108	18	25	38	50	57	69	81	88
114	18	24	36	47	54	65	77	84
120	18	23	34	45	51	62	73	80
126	18	22	32	42	49	59	69	76
132	18	21	31	40	46	56	66	72
138	18	20	29	39	44	54	63	69
144	18	19	28	37	43	51	61	66
150	24	18	27	36	41	49	58	64
156	24	17	26	34	39	47	56	61
162	24	17	25	33	38	46	54	59
168	24	16	24	32	36	44	52	57
174	24	16	23	31	35	42	50	55
180	24	15	22	30	34	41	48	53
186	24	15	22	29	33	40	47	51
192	24		21	28	32	38	45	50
198	30		20	27	31	37	44	48
204	30		20	26	30	36	43	47
210	30		19	25	29	35	41	45
216	30			25	28	34	40	44
222	30			24	27	33	39	43
228	30			23	27	32	38	42
234	30			23	26	31	37	41
240	30				25	31	36	40
246	36				25	30	35	39
252	36					29	34	38
258	36					28	34	37
264	36					28	33	36
270	36					27	32	35
276	36						31	34
282	36						31	34
288	42						30	33
294	42							32
300	42							32
306	42							31
312	42							30

**Longitudinal seams use (4) 3/4" dia. bolts per foot.

GENERAL NOTES

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⓓ
17 x 13	3	0.064	12	16	18
21 x 15	3	0.064	12	15	14
24 x 18	3	0.064	12	15	13
28 x 20	3	0.064	12	15	11
35 x 24	3	0.064	12	15	7
42 x 29	3 1/2	0.064	12	15	7
49 x 33	4	0.079	12	15	6
57 x 38	5	0.109	12	15	8
64 x 43	6	0.109	12	15	9
71 x 47	7	0.138	12	15	10
77 x 52	8	0.168	12	15	10
83 x 57	9	0.168	12	15	10

Minimum & Maximum Cover For 3" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⓓ
40 x 31	5	0.079	12	25	12
46 x 36	6	0.079	12	25	13
53 x 41	7	0.079	12	25	13
60 x 46	8	0.079	15	25	13
66 x 51	9	0.079	15	25	13
73 x 55	12	0.079	18	24	16
81 x 59	14	0.079	18	21	17
87 x 63	14	0.079	18	20	16
95 x 67	16	0.079	18	20	17
103 x 71	16	0.079	18	20	15
112 x 75	18	0.079	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.138	24	19	14
137 x 87	18	0.138	24	19	13
142 x 91	18	0.138	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

Minimum & Maximum Cover For 5" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⓓ
40 x 31	5	0.109	12	25	12
46 x 36	6	0.109	15	25	13
53 x 41	7	0.109	15	25	13
60 x 46	8	0.109	18	25	13
66 x 51	9	0.109	18	25	13
73 x 55	12	0.109	18	24	16
81 x 59	14	0.109	18	21	17
87 x 63	14	0.109	18	20	16
95 x 67	16	0.109	18	20	17
103 x 71	16	0.109	18	20	15
112 x 75	18	0.109	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.109	24	19	14
137 x 87	18	0.109	24	19	13
142 x 91	18	0.109	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe-Arch**

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	2 Tons Corner Bearing Pressure Min. Cover (In)	2 Tons Corner Bearing Pressure Max. Cover (Ft)	3 Tons Corner Bearing Pressure ⓓ Min. Cover (In)	3 Tons Corner Bearing Pressure ⓓ Max. Cover (Ft)
6-1 x 4-7	18	0.111	18	16	12	24
7-0 x 5-1	18	0.111	18	14	12	21
7-11 x 5-7	18	0.111	18	13	12	19
8-10 x 6-1	18	0.111	24	11	18	17
9-9 x 6-7	18	0.111	24	10	18	15
10-11 x 7-1	18	0.111	24	9	18	14
11-10 x 7-7	18	0.111	24	7	18	13
12-10 x 8-4	18	0.111	30	6	24	12
14-1 x 8-9	18	0.111	30	5	24	11
15-4 x 9-3	18	0.111	NS	NS	24	10
15-10 x 9-10	18	0.111	NS	NS	24	9
16-7 x 10-1	18	0.111	NS	NS	24	9
13-3 x 9-4	31	0.111	24	13	24	17
14-2 x 9-10	31	0.111	24	12	24	16
15-4 x 10-4	31	0.111	24	11	24	15
16-3 x 10-10	31	0.111	24	11	24	14
17-2 x 11-4	31	0.111	30	10	30	13
18-1 x 11-10	31	0.111	30	10	30	12
19-3 x 12-4	31	0.111	30	9	30	13
19-11 x 12-10	31	0.140	30	9	30	13
20-7 x 13-2	31	0.140	36	7	36	13

NS = Not Suitable

**Longitudinal seams use (4) 3/4" dia. bolts per foot.

ⓓ This column shall not be used unless specified on the plans or approved by the Region Geotechnical Engineer.

METAL THICKNESSES & GAGES

STEEL		GAGE NO. (For Info Only)
ZINC COATED	UNCOATED	
0.064	0.0598	16
0.079	0.0747	14
0.109	0.1047	12
0.138	0.1345	10
0.168	0.1644	8
0.188	0.1838	7
0.218	0.2145	5
0.249	0.2451	3
0.280	0.2758	1

REVISIONS

Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4.	LRG

Sheet 2 of 4

State of Alaska
Department of Transportation & Public Facilities

PIPE AND ARCH TABLES

APPROVED

STATE OF ALASKA 49TH STATE Lars R. Gregovich CE-8065 Registered Professional Engineer

Date 10/31/03

D-04.21

Maximum Cover for Type S Corrugated Polyethelene Pipe	
Size (in.)	Max. Cover (ft.)
12	30.0
15	30.0
18	30.0
24	30.0
30	30.0
36	30.0
40	20.0
48	20.0

GENERAL NOTES

1. All materials and workmanship shall be in accordance with the State of Alaska Standard Specifications for Highway Construction.

2. For foundation and structural backfill details see Standard Drawing "Culvert Pipe & Arch Installation Details".

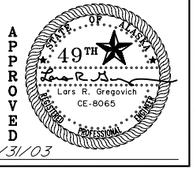
3. Pipe cover height is measured from top of the pipe to top of rigid pavement, or to the top of subgrade for flexible pavement. In all cases the minimum cover shall be no less than 2 ft. Where loads traverse the culvert during construction minimum cover shall be no less than 4 ft.

REVISIONS		
Date	Description	By
10/31/03	New Sheet 4.	LRG

State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES

APPROVED
Date 10/31/03



Minimum & Maximum Cover For Aluminum Spiral Rib Circular Pipe*								
GAGE	0.060"		0.075"		0.105"		0.135"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	24	35	24	50				
18	24	34	24	49				
24	24	25	24	36	24	63	24	82
30	24	19	24	28	24	50	24	65
36	24	15	24	24	24	41	24	54
42			24	19	24	35	24	46
48			24	17	24	30	24	40
54			24	14	24	27	24	35
60			24	12	24	24	24	30

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

Minimum & Maximum Cover For Aluminum Spiral Rib Pipe-Arch*				
		Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.060"	0.075"	0.105"
Span x Rise (In. x In.)	Min. Cover (In.)	Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover For Steel and Aluminized Steel Spiral Rib Circular Pipe*								
GAGE	0.064"		0.079"		0.109"		0.138"**	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
18	12							
24	12	51	12	72	12	121		
30	12	41	12	58	12	97		
36	12	34	12	48	12	81		
42	12	29	12	41	12	69		
48	12	26	12	36	12	61		
54	18	23	18	32	18	54		
60	18	21	18	29	18	49	18	73
66	18	19	18	26	18	44	18	65
72			18	24	18	40	18	59
78			24	22	24	37	24	55
84			24	21	24	35	24	52
90					24	32	24	47
96					24	30	24	44
102					30	29	30	43
108					30	27	30	41

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

**¾ x ¾ x 7½ in. Corrugations Only.

Minimum & Maximum Cover For Steel Spiral Rib Arch-Pipe*				
		Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.064"	0.079"	0.109"
Span x Rise (In. x In.)	Min. Cover (In.)	Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

D-04.21

GENERAL NOTES

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	New Sheet 4.	LRG

Sheet 4 of 4

State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES

APPROVED

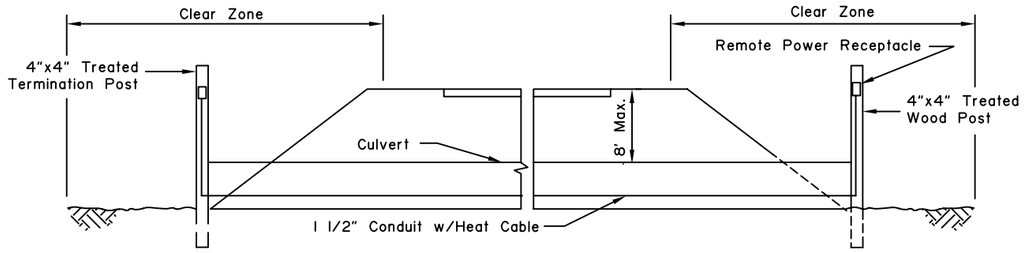
Lars R. Gregovich
CE-8065

Date 10/31/03

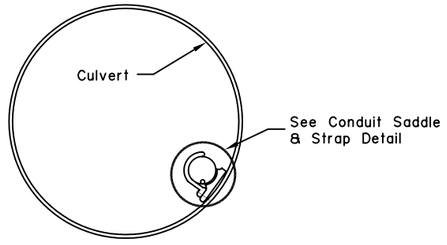
D-04.21

D-14.10

SHEET | of |



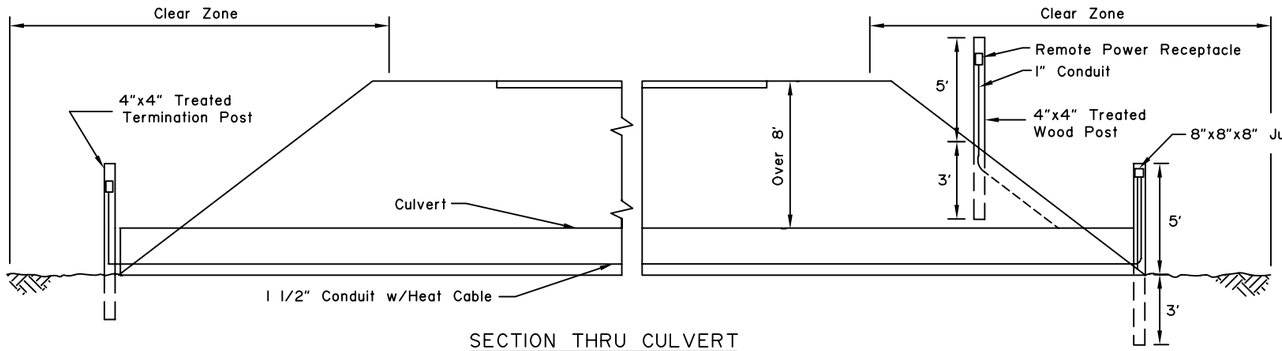
SECTION THRU CULVERT
(Low Fill)



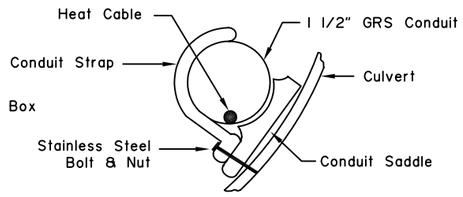
CULVERT CROSS SECTION

GENERAL NOTES:

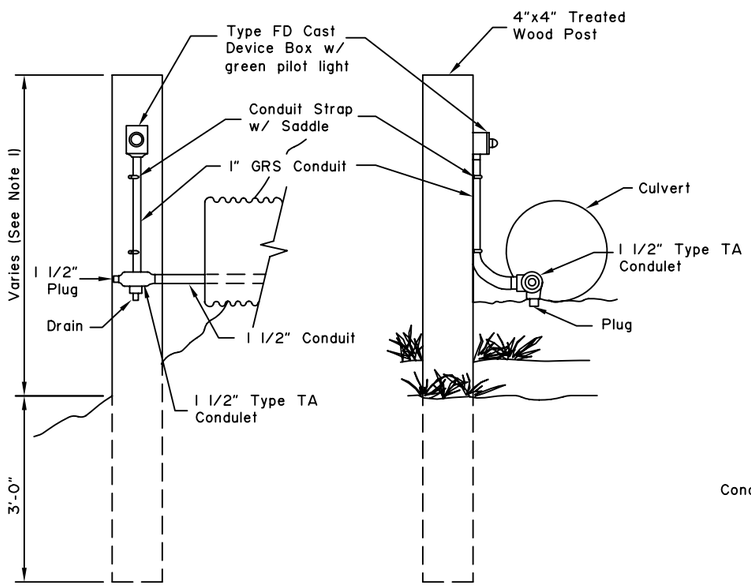
1. Type FD Cast Device Box w/green pilot light on the termination post shall be located a minimum of 6" above high water.



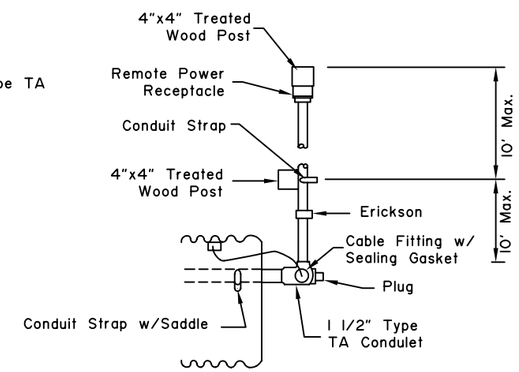
SECTION THRU CULVERT
(High Fill)

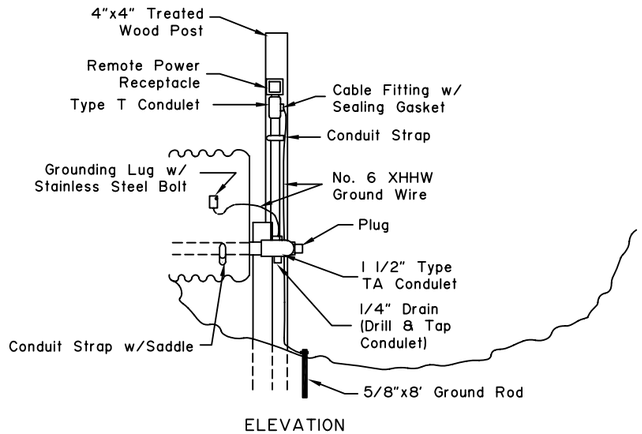


CONDUIT SADDLE & STRAP DETAIL



TERMINATION POST DETAIL





REMOTE CULVERT ENTRY DETAIL

REVISIONS		
Date	Description	By
3/1/83	Revised Gen. Notes	WJF/HK
4/1/93	Modified Drawing	Gdo

State of Alaska
Department of Transportation & Public Facilities

REMOTE THAW WIRE INSTALLATION

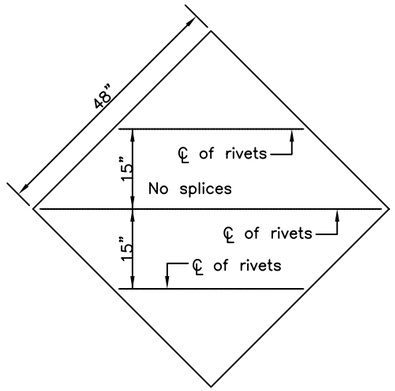
APPROVED

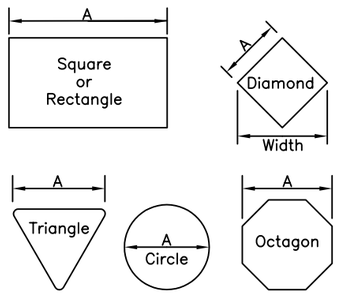
B. C. HAMMIT EE-4800

Loren L. Rasmussen CE-3395

Date 7/15/82

D-14.10

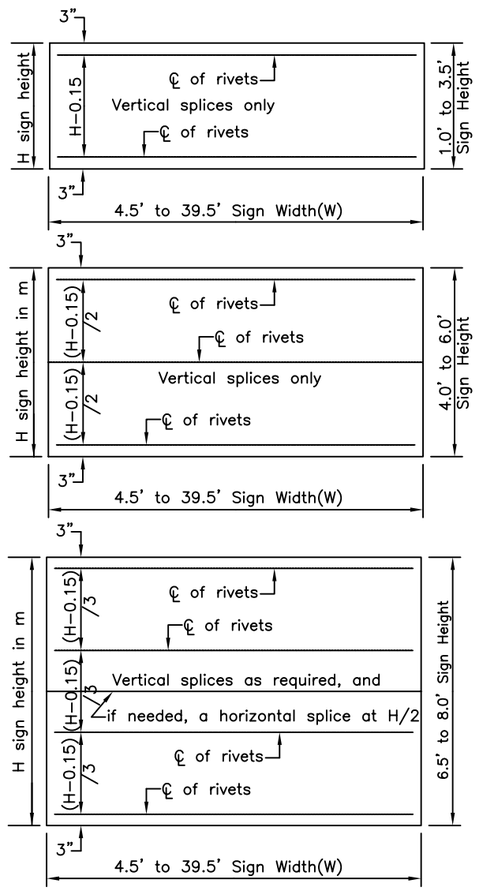




Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

Install wind framing on all signs that exceed the dimensions listed.

LIGHT SIGNS



WIND FRAMING LOCATIONS

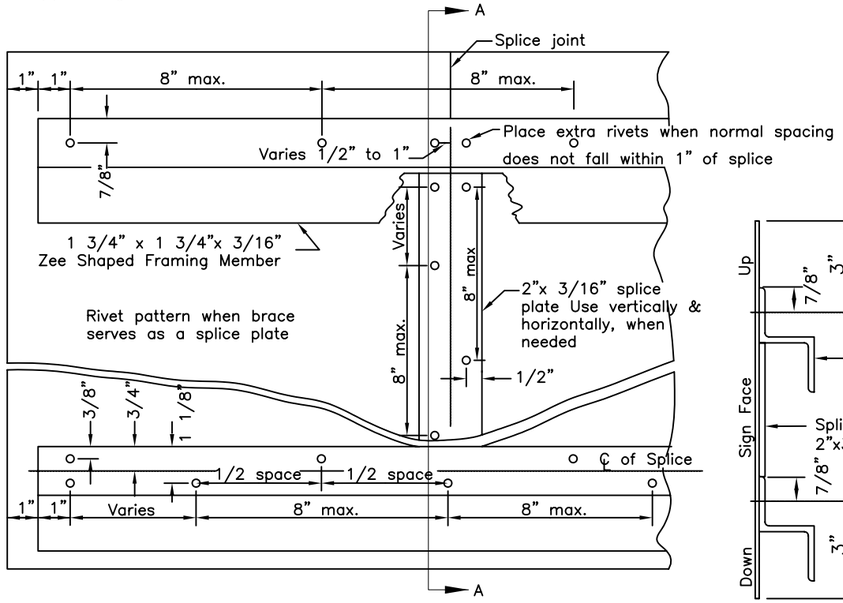
Pipe and Tube Sign Post Spacing			
Sign Width (W)	No. of Posts	Distance Between Posts	Sign Overhang
4.5 ft. to 10.0 ft.	2	0.6W	0.2W
10.5 ft. to 11.0 ft.	2	6.0 feet	Varies

W Shape Sign Post Spacing			
Sign Width (W)	No. of Posts	Distance Between Posts	Sign Overhang
11.5 ft to 13.0 ft	2	8.0 feet	Varies
13.5 ft to 20.0 ft	2	0.6W	0.2W
20.5 ft to 22.5 ft	3	8.0 feet	Varies
23.0 ft to 29.5 ft	3	0.35W	0.15W
30.0 ft to 31.5 ft	4	8.0 feet	Varies
32.0 ft to 40.0 ft	4	0.25W	0.125W

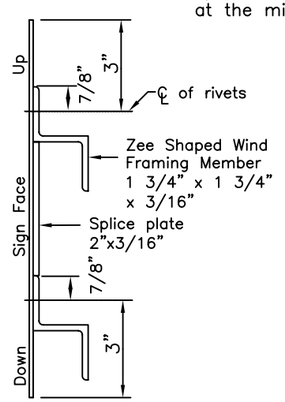
SIGN POST SPACING

SIGN POST SELECTION AND SPACING NOTES

1. Use one tube (solid or perforated) to support all signs that measure 48" or less in width or diameter, diamond shaped signs that measure 48" or less on a side, Class T roadway route marker assemblies, and E5–1 gore signs. Do not use pipe posts for single post signs.
2. Install combination stop and street name signs on a 2–1/2" perforated tube.
3. Use two pipes spaced according to the Pipe and Tube Sign Post Spacing table to support signs too large for one post and not more than 11.0' in width. Tubes may be substituted for pipes provided the tube size equals the nominal pipe size.
4. Do not use perforated tubing larger than 2" for two post installations.
5. Use the number of W shape posts specified in the W Shape Sign Post table to support signs more than 11.0' in width.



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE



SECTION A–A

GENERAL NOTES

1. See the standard specifications for the aluminum alloys that you may use for sign sheeting and wind framing members.
2. Fabricate all signs from 0.125" thick aluminum sheeting.
3. Sign fabricators may use alternates to the zee shaped framing member with approval of the engineer, if the frame manufacturer certifies their design equals or exceeds the strength of the zee shaped design.
4. Install one piece wind framing members on all signs up to 23.5' wide. Use one splice in each wind frame on all signs wider than 23.5'. Locate splices at least 18" from all posts and panel edges. Stagger splices in adjacent framing members at least 8.0' apart.
5. Attach wind framing members with rivets or with an engineer approved, double sided, high strength, adhesive tape. Clean and handle sheeting and framing members and apply tape in accordance with the tape manufacture's written instructions. Install two rivets in both ends of each framing member.
6. Use 3/16" diameter rivets conforming to aluminum alloy 6061–T6 for cold driven rivets, or aluminum alloy 6061–T43 for hot driven rivets.
7. Sign fabricators may use sign panels extruded with integral framing with approval of the engineer, if the manufacturer certifies their design equals or exceeds the strength of the 0.125" thick panel with framing attached to it.
8. Frame all signs taller than 8.0' with five wind framing members located (H–0.15)/4 spaces. If needed, make a horizontal splice at the middle wind frame.

REVISIONS		
Date	Description	By

Sheet 1 of 1

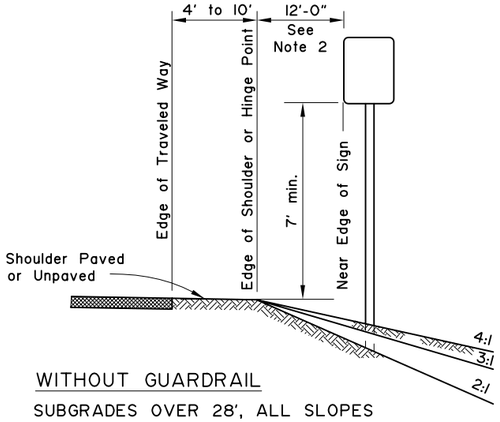
State of Alaska
Department of Transportation
& Public Facilities

SIGN FRAMING AND POST SPACING

APPROVED
Date 2/28/03

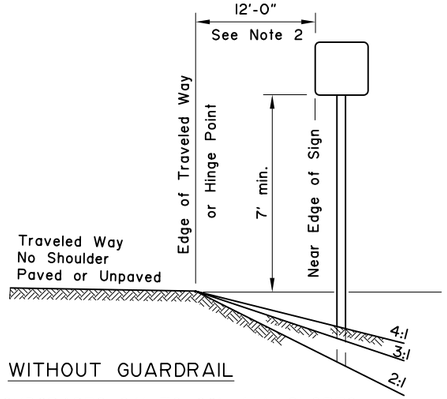
S-00.10

S-05.01



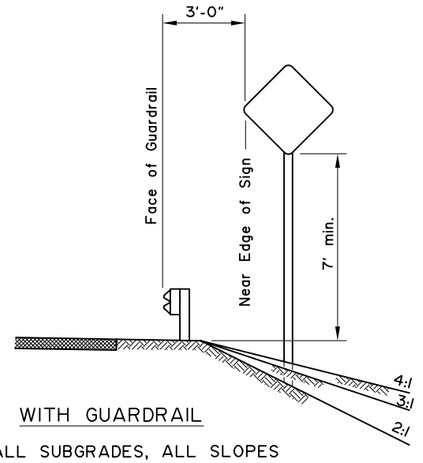
WITHOUT GUARDRAIL

SUBGRADES OVER 28', ALL SLOPES



WITHOUT GUARDRAIL

SUBGRADES 24' TO 28', ALL SLOPES

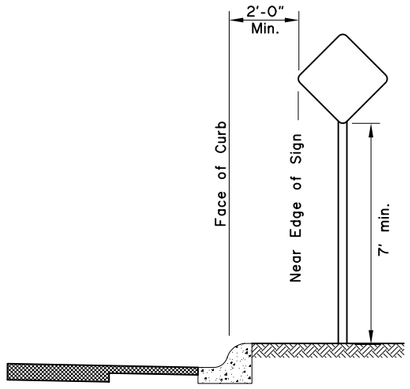


WITH GUARDRAIL

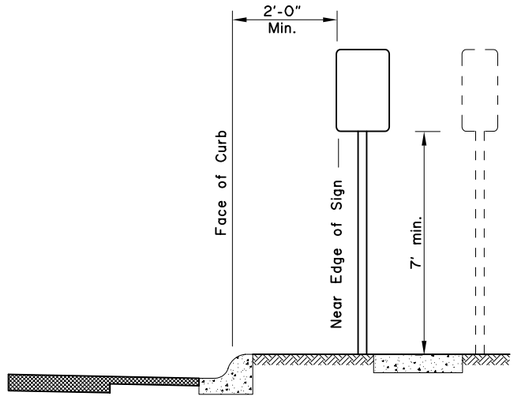
ALL SUBGRADES, ALL SLOPES

GENERAL NOTES

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6'.
2. If signs extend over sidewalks, the minimum vertical clearance is 7'-0".
3. Add 6" to mounting height on unpaved roads.
4. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
5. When signs are placed 30' or more from the edge of traveled way, mount them with the bottom of the sign at least 5' above the road surface at the near edge of the road.
6. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.

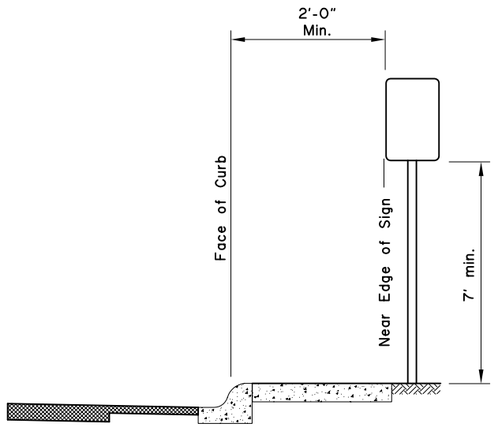


CURB WITHOUT SIDEWALK

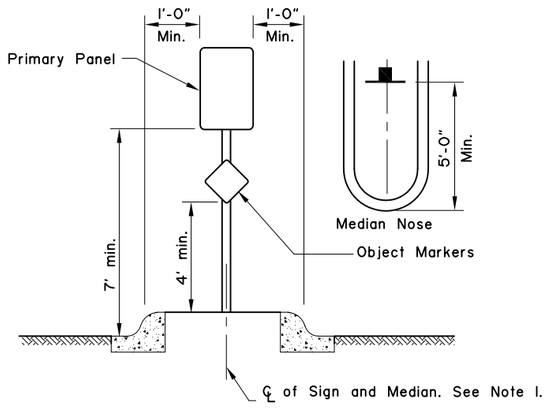


CURB WITH PARKWAY AND SIDEWALK

(If R/W width permits, signs should be placed behind sidewalk.)

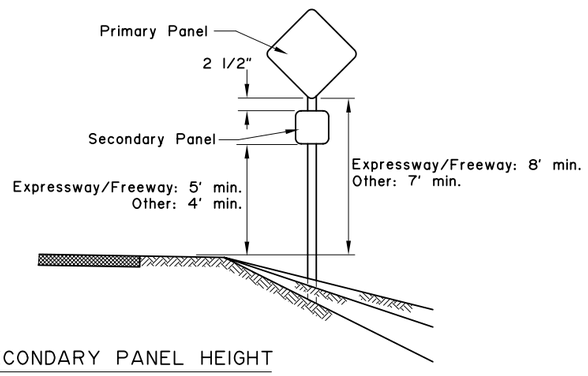


CURB WITH SIDEWALK WITHOUT PARKWAY



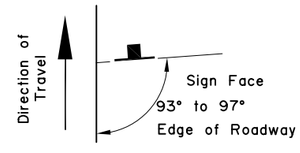
RAISED MEDIANS

Minimum 4' Width for Signing



SECONDARY PANEL HEIGHT

ALL TWO PANEL MOUNTING



SIGN POSITIONING

REVISIONS		
Date	Description	By
4/3/01	Revised Sign Heights	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

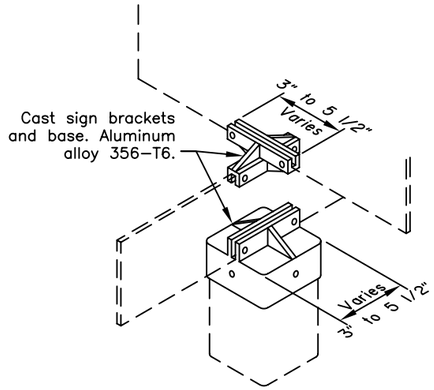
POST MOUNTED SIGN OFFSET AND HEIGHT

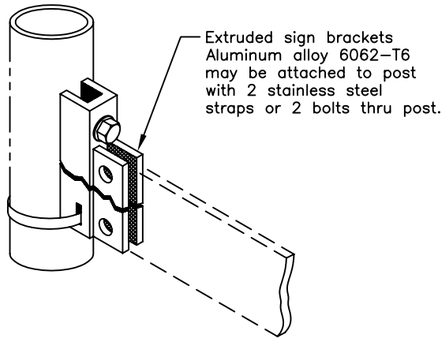
APPROVED

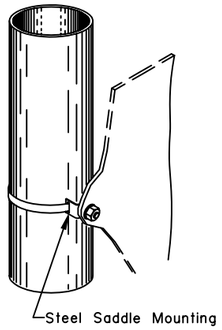
Date 7/15/82

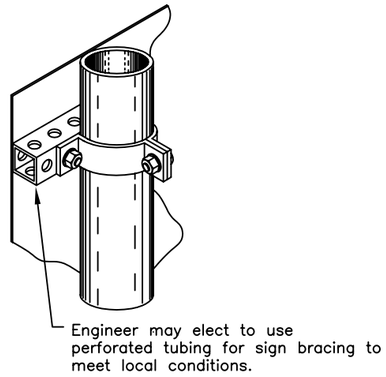
S-05.01

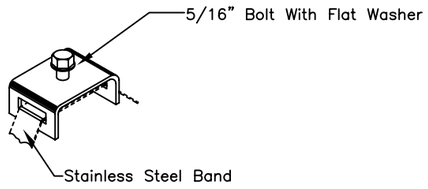
S-20.10

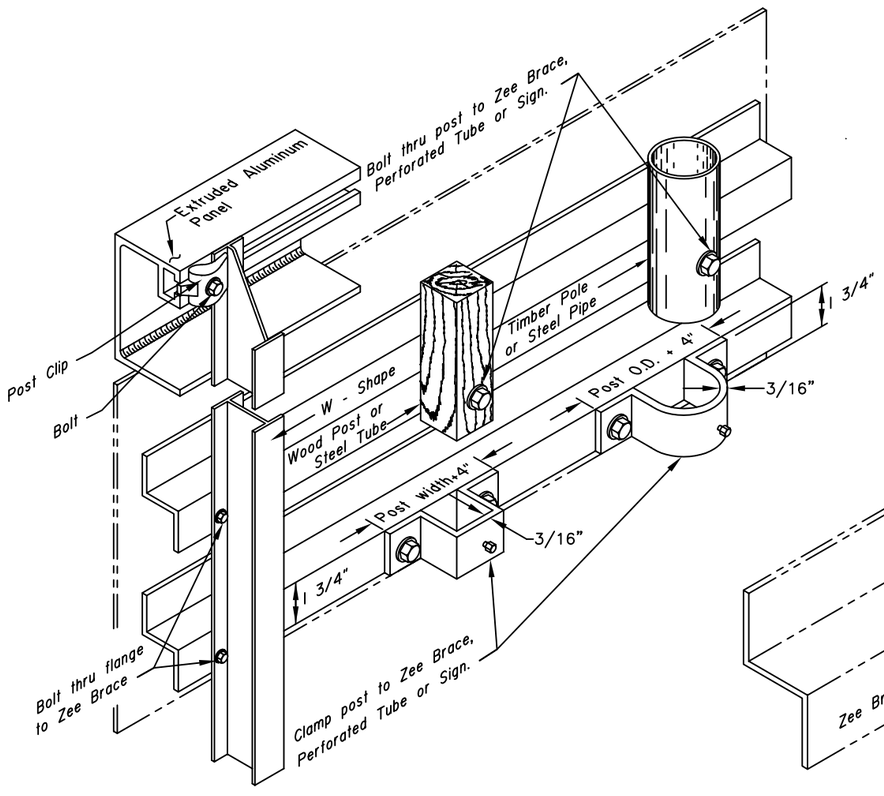


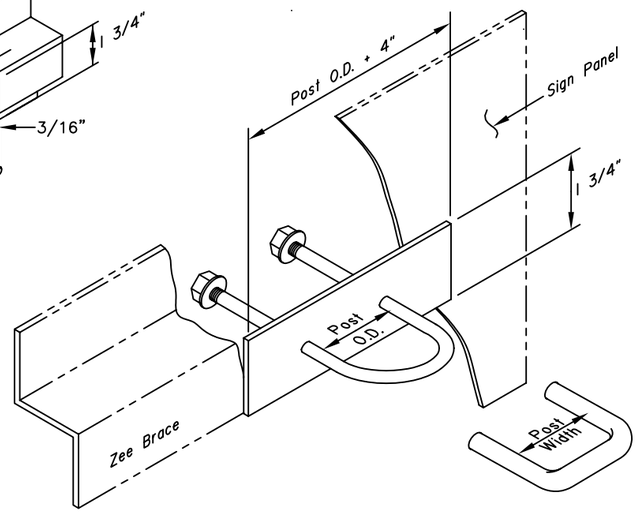


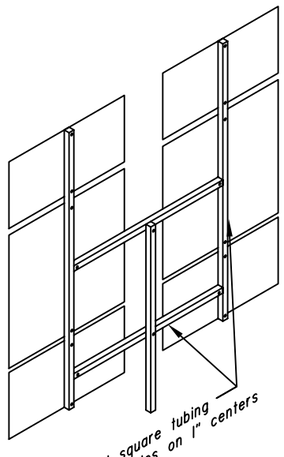












GENERAL NOTES

1. Details shown indicate general design only. Dimensions and design may vary among the manufacturers.
2. Install weather tight caps on all pipe and tube post (except perforated tubing).
3. Protect sign posts installed using driving methods with drive caps during installation.
4. Bolt braces to posts at each point where they cross posts.
5. Install signs with top of post, mounting brackets, etc. with a minimum of 3" below top of sign.
6. Paint all sign mounting fasteners on sign face a color closely matching the sign face.
7. Attach all signs, zees and braces mounted to the posts with 5/16" bolts.
8. Furnish all aluminum nuts, bolts and washers with anodized finish.

FASTENER SPECIFICATION TABLE				
FASTENERS		ALUMINUM	STEEL	STAINLESS STEEL
BOLTS	MACHINE CARRIAGE "U"	2024–T4	A–307	A–276
NUTS	REGULAR	6061–T6	A–307	A–276
	LOCK	2017–T4		
WASHERS		2024–T4	A–36	A–276
POST CLIP		356–T6		

REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

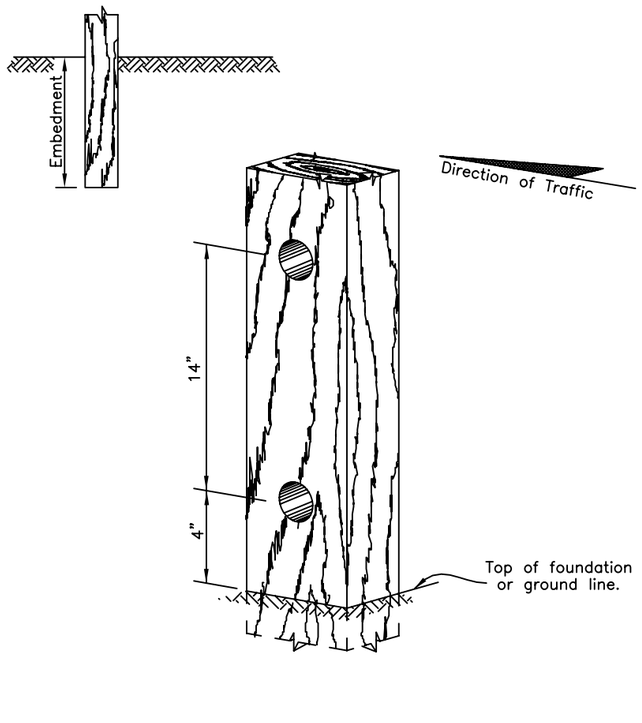
SIGN TO SIGN POST CONNECTIONS

APPROVED

Date 2/28/03

S–20.10

S-30.03

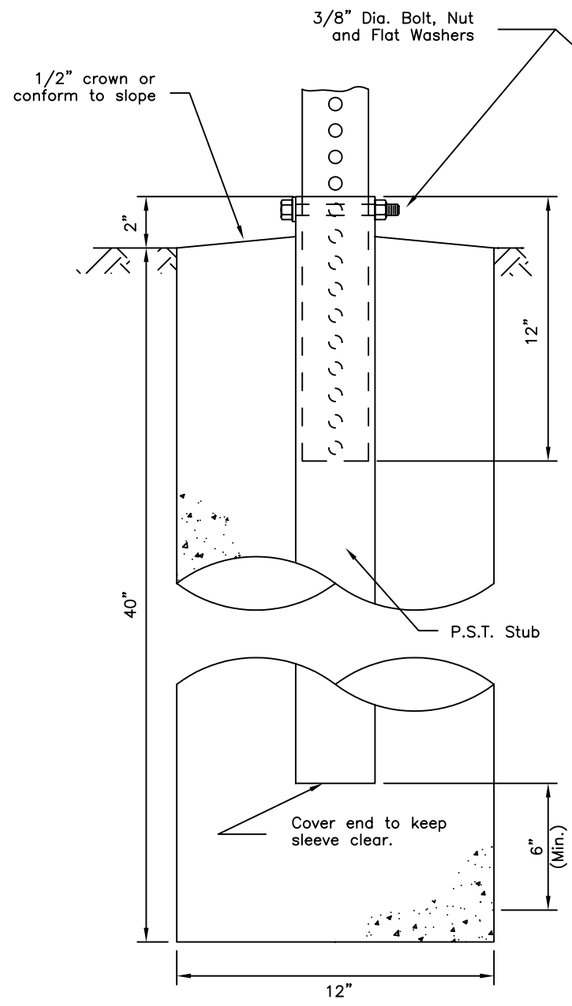


Note: If holes are field drilled after post has been treated, the holes shall be thoroughly swabbed with a 5% solution of pentachlorophenol and mineral spirits.

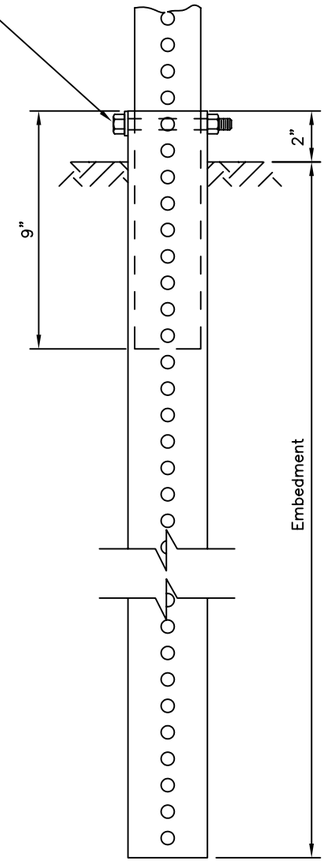
WOOD POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NUMBER OF POSTS WITHIN 7 Ft. PATH
4"x4"	NONE	36"	2
4"x6"	1 1/2"	36"	2
6"x6"	1 1/2"	40"	1
6"x8"	3"	48"	1

* Embedment depth applies in both strong and weak soil.

WOOD POSTS



SLEEVE TYPE
–CONCRETE FOUNDATION–



SLEEVE TYPE *
–SOIL EMBEDMENT–

PERFORATED STEEL TUBES (P.S.T.) (12 ga. – .105" Wall Thickness)		
POST SIZE (inch)	Embedment Depth	No. of P.S.T.s permitted within 7 ft path
1 1/2" x 1 1/2"	3'–0"	2
1 3/4" x 1 3/4"	3'–0"	2
2" x 2"	3'–6"	2
2 1/4" x 2 1/4"	4'–0"	1
2 1/2" x 2 1/2"	4'–6"	1

* Use 3"x3"x3/16" Stub for 2 1/2"x2 1/2" PST Applications.

PERFORATED STEEL TUBE (PST) POSTS

GENERAL NOTES:

1. Refer to Standard Drawing "Sheet Aluminum Sign and Framing" for light sign details.
2. See plans for type of post, size and embedment type.
3. To maintain crashworthiness, install no more than the number of P.S.T.s or wood posts specified in the tables within 7' of each other.
4. Do not install wood posts larger than 6"x8".
5. Use larger posts than shown on this sheet, with hinges, for multiple support signs where the supports are separated by more than 7 feet.

REVISIONS		
Date	Description	By
1/1/85	Redraft–Delete Post	Gdo
4/2/01	Revised PST table	Kjs
	Added note 3	
2/12/02	Revised Wood Posts	Kjs

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

LIGHT SIGN
STRUCTURE POST
EMBEDMENT

APPROVED
Kurtis J. Smith
CE-7347
REGISTERED PROFESSIONAL ENGINEER

Date 7/15/82

S-30.03