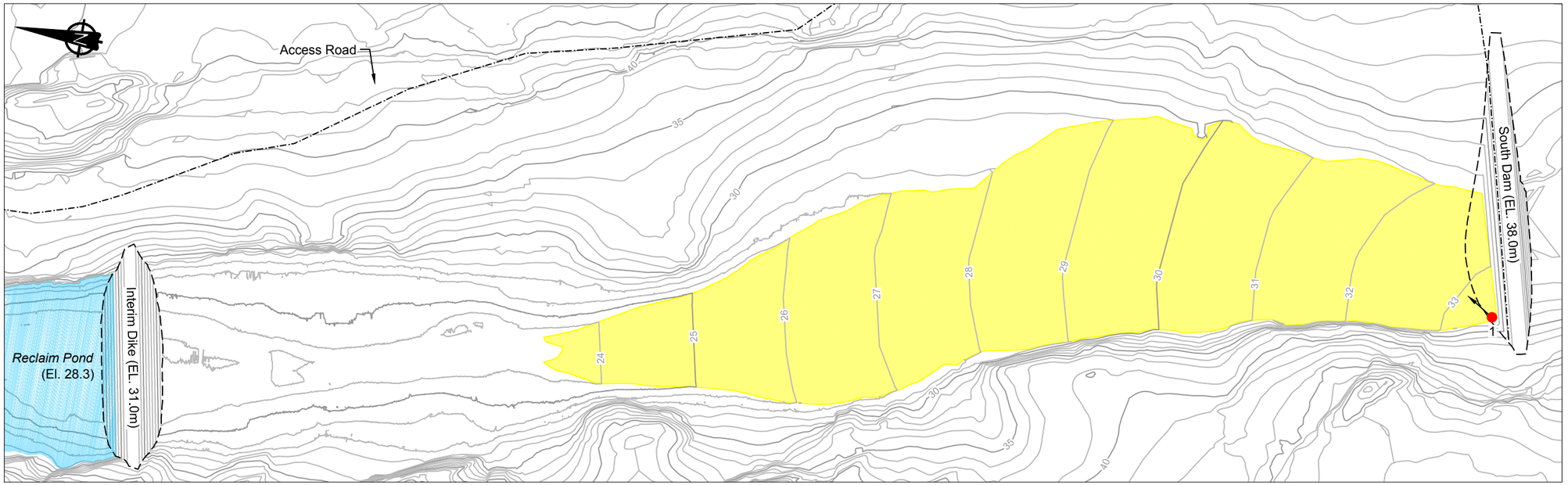
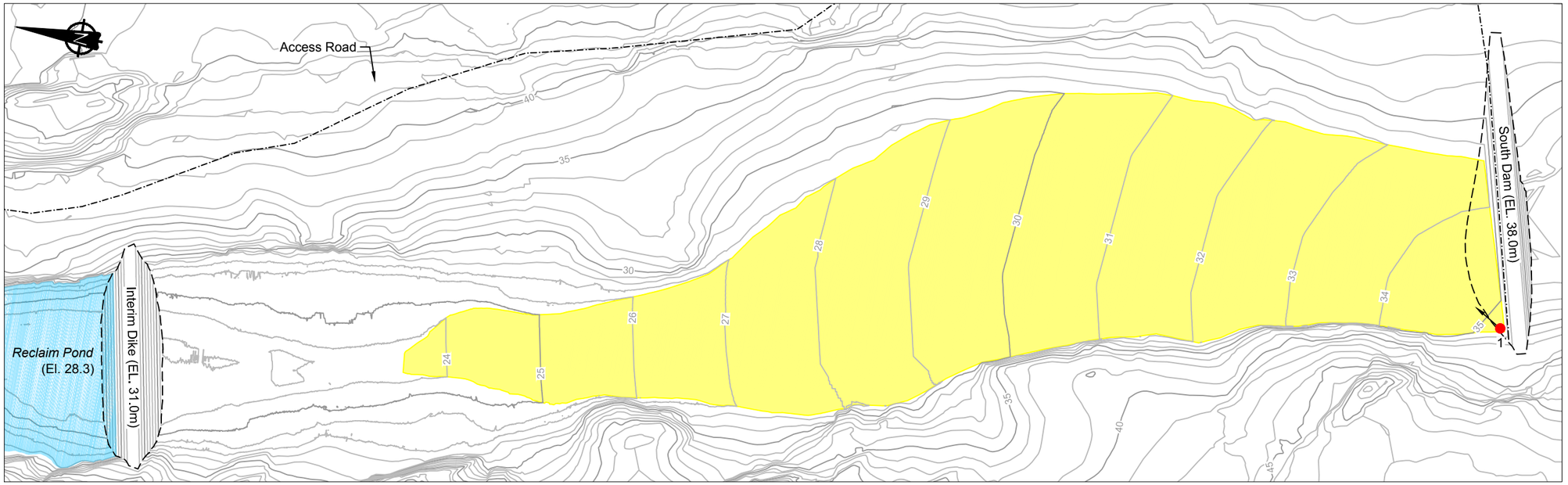


TAILINGS DEPOSITION - YEAR 1

Spigot Elev.: No.1: 33.5m
Deposited Tailings: 0.34Mm³
Duration: 1 Year
Deposited Tailings Surface Area (cumulative): 0.17km²
Production Rate: 773.4m³/day (1,000tpd)



TAILINGS DEPOSITION - YEAR 2

Spigot Elev.: No.1: 35.25m
Deposited Tailings (Cumulative): 0.68Mm³
Duration: 1 Year
Production Rate: 773.4m³/day (1,000tpd)
Deposited Tailings Surface Area (cumulative): 0.23km²

LEGEND

- Spigot Location
- Major Contour (5m)
- Minor Contour (1m)
- Approximate Tailings Line
- Current Deposition
- Proposed Dam / Dike

NOTES

1. Deposition durations are approximate and were based on an average production rate of 1,000tpd for years 1 and 2 and 2,000tpd for years 3 and 4.
2. Assumed an average deposited tailings beach slope of 1.0%.
3. A deposited tailings dry density of 1.29 t/m³ was used (based on laboratory testing).
4. All tailings volumes presented include ice entrainment, which was assumed at 20% of production.
5. Dam and dike elevations shown were assumed constant for throughout deposition.
6. Total storage requirement is 2.32Mm³ (tailings 1.93Mm³ + ice entrainment 0.39Mm³).

0m 50 100 150 200

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SRK JOB NO.: 1CT022.002
FILE NAME: 1CT022.002 - SC4 -staged.dwg

TMAC RESOURCES

HOPE BAY PROJECT

DORIS NORTH TIA OMS MANUAL

TAILINGS DEPOSITION PLAN (YEARS 1 & 2)

DATE:	APPROVED:	FIGURE:
May 2016	EK/SA	8

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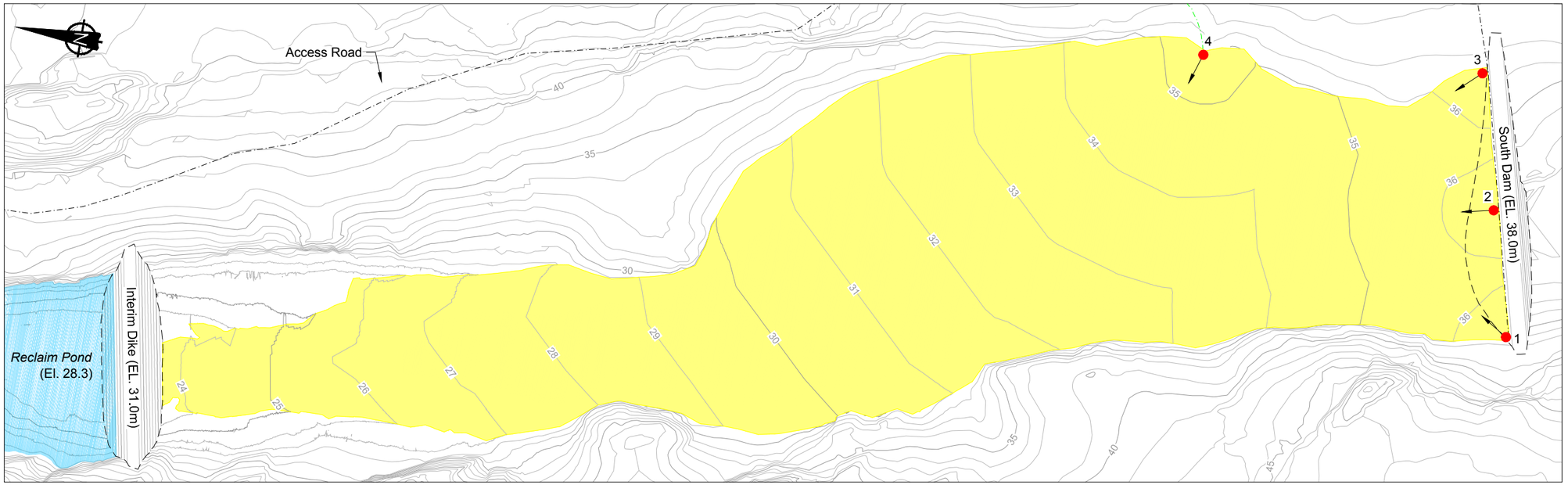
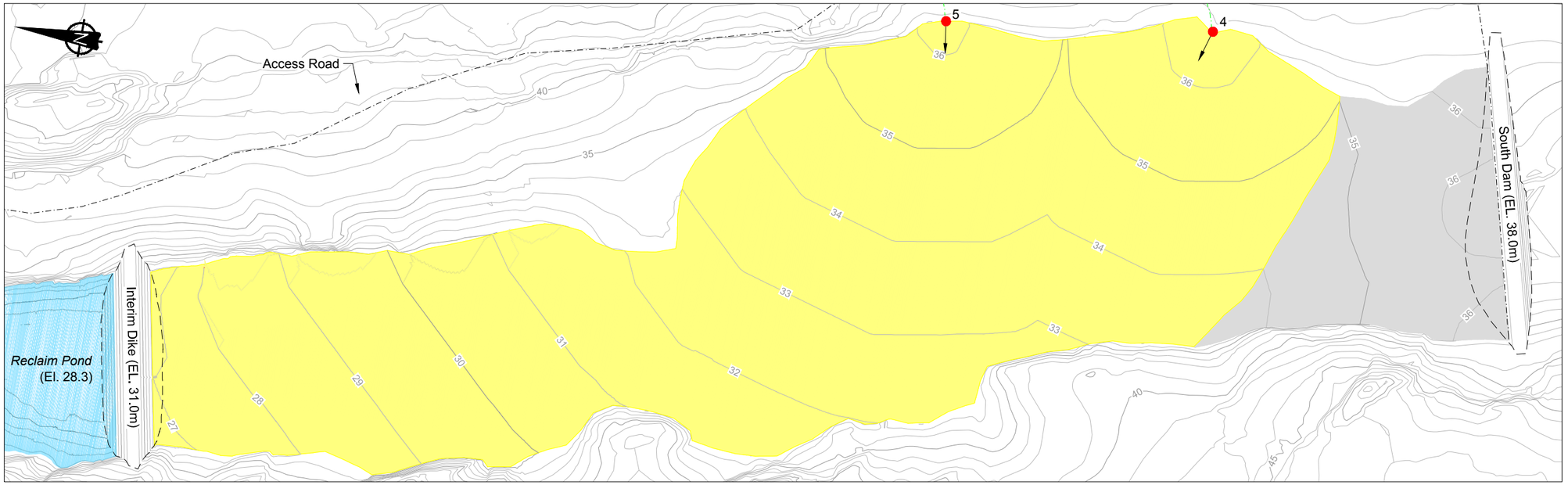


TAILINGS DEPOSITION - YEAR 3

Spigot Elev.: No.'s 1 to 3: 36.5m
No. 4: 35.5m
Deposited Tailings (Cumulative): 1.35Mm³
Duration: 1 Year

Production rate: 1,546.8m³/day (2,000tpd)
Deposited Tailings Surface Area (cumulative): 0.34km²



TAILINGS DEPOSITION - YEAR 4

Spigot Elev.: No. 4: 36.5m
No. 5: 36.25m
Deposited Tailings (Cumulative): 2.03Mm³
Duration: 1 Year

Production Rate: 1,546.8m³/day (2,000tpd)
Deposited Tailings Surface Area (cumulative): 0.36km²
Previous Tailings Surface Area: 0.06km²

LEGEND

- Spigot Location
- Major Contour (5m)
- Minor Contour (1m)
- Approximate Tailings Line
- Active Deposition
- Previous Deposition
- Proposed Dam / Dike

NOTES

1. Deposition durations are approximate and were based on an average production rate of 1,000tpd for years 1 and 2 and 2,000tpd for years 3 and 4.
2. Assumed an average deposited tailings beach slope of 1.0%.
3. A deposited tailings dry density of 1.29 t/m³ was used (based on laboratory testing).
4. All tailings volumes presented include ice entrainment, which was assumed at 20% of production.
5. Dam and dike elevations shown were assumed constant for throughout deposition.
6. Total storage requirement is 2.32Mm³ (tailings 1.93Mm³ + ice entrainment 0.39Mm³).

0m 50 100 150 200

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SRK JOB NO.: 1CT022.002
FILE NAME: 1CT022.002 - SC4 -staged.dwg

TMAC RESOURCES

HOPE BAY PROJECT

DORIS NORTH TIA OMS MANUAL

TAILINGS DEPOSITION PLAN (YEARS 3 & 4)

DATE:	APPROVED:	FIGURE:
May 2016	EK/SA	9

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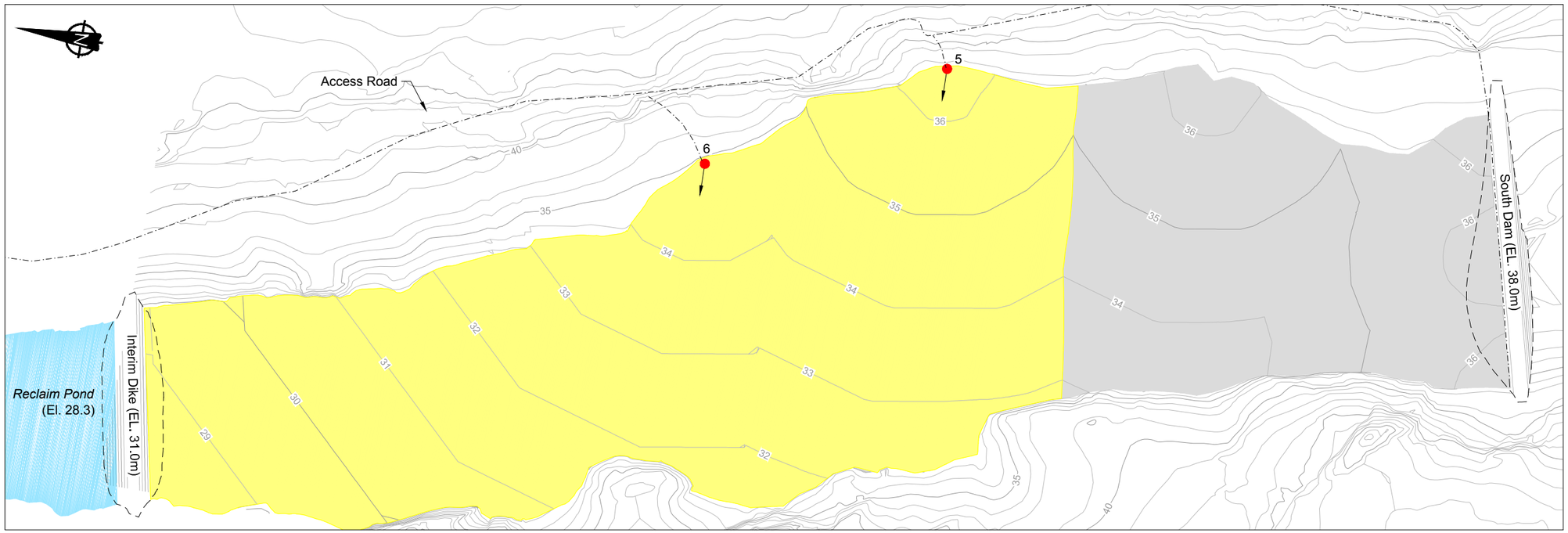

LEGEND

- Spigot Location
- Major Contour (5m)
- Minor Contour (1m)
- Approximate Tailings Line
- Active Deposition
- Previous Deposition
- Proposed Dam / Dike

NOTES

1. Deposition durations are approximate and were based on an average production rate of 1,000tpd for years 1 and 2 and 2,000tpd for years 3 and 4.
2. Assumed an average deposited tailings beach slope of 1.0%.
3. A deposited tailings dry density of 1.29 t/m³ was used (based on laboratory testing).
4. All tailings volumes presented include ice entrainment, which was assumed at 20% of production.
5. Dam and dike elevations shown were assumed constant for throughout deposition.
6. Total storage requirement is 2.32Mm³ (tailings 1.93Mm³ + ice entrainment 0.39Mm³).

TAILINGS DEPOSITION - END OF MINE (YEAR 4, MONTH 5)

Spigot Elev.: No. 5: 36.5m
No. 6: 35.0m
Deposited Tailings (Cumulative): 2.32Mm³
Duration: 5 Months

Production Rate: 1,546.8m³/day (2,000tpd)
Deposited Tailings Surface Area (cumulative): 0.30km²
Previous Tailings Surface Area (cumulative): 0.14km²

0m 50 100 150 200

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SRK JOB NO.: 1CT022.002
FILE NAME: 1CT022.002 - SC4 -staged.dwg

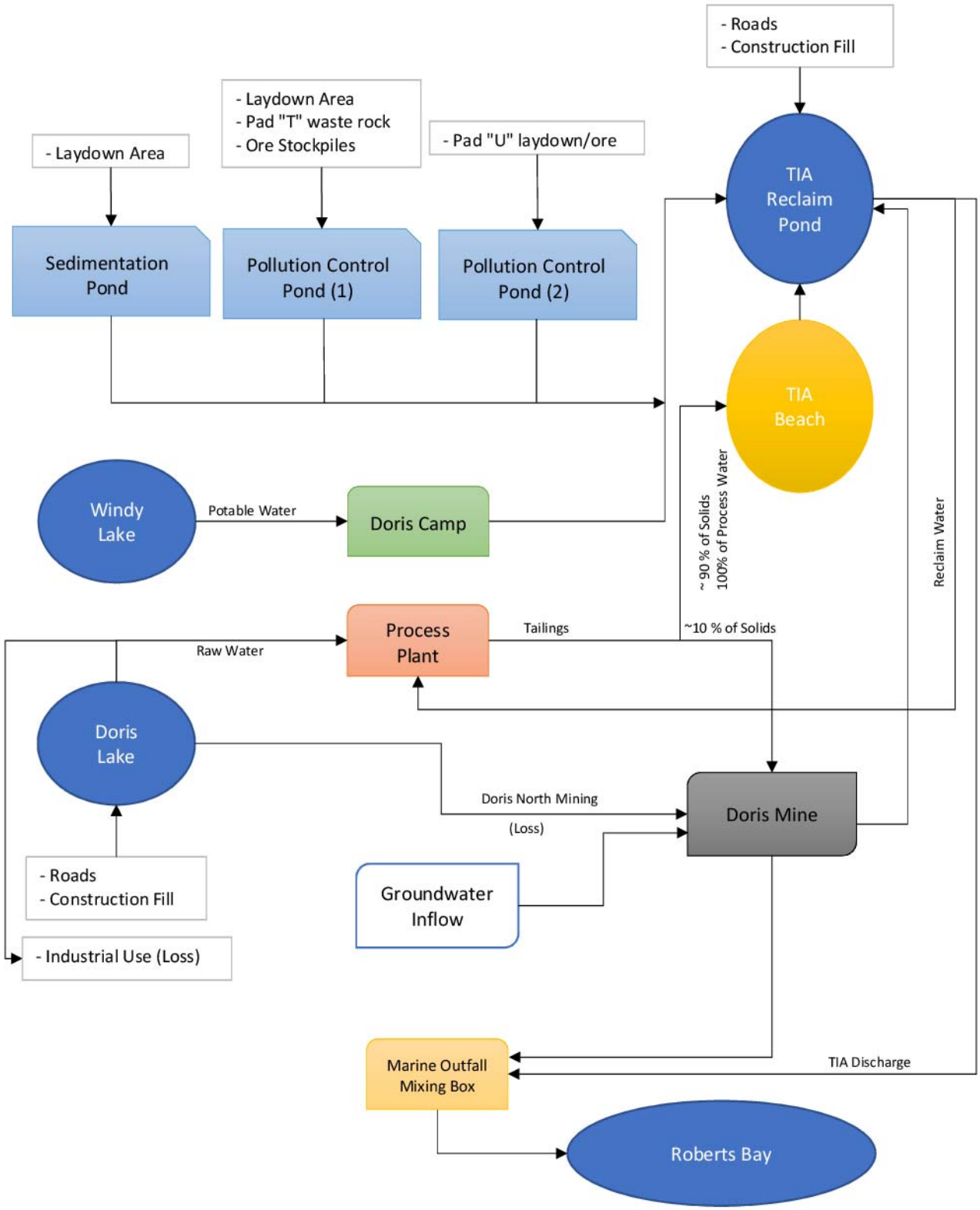
TMAC RESOURCES

HOPE BAY PROJECT

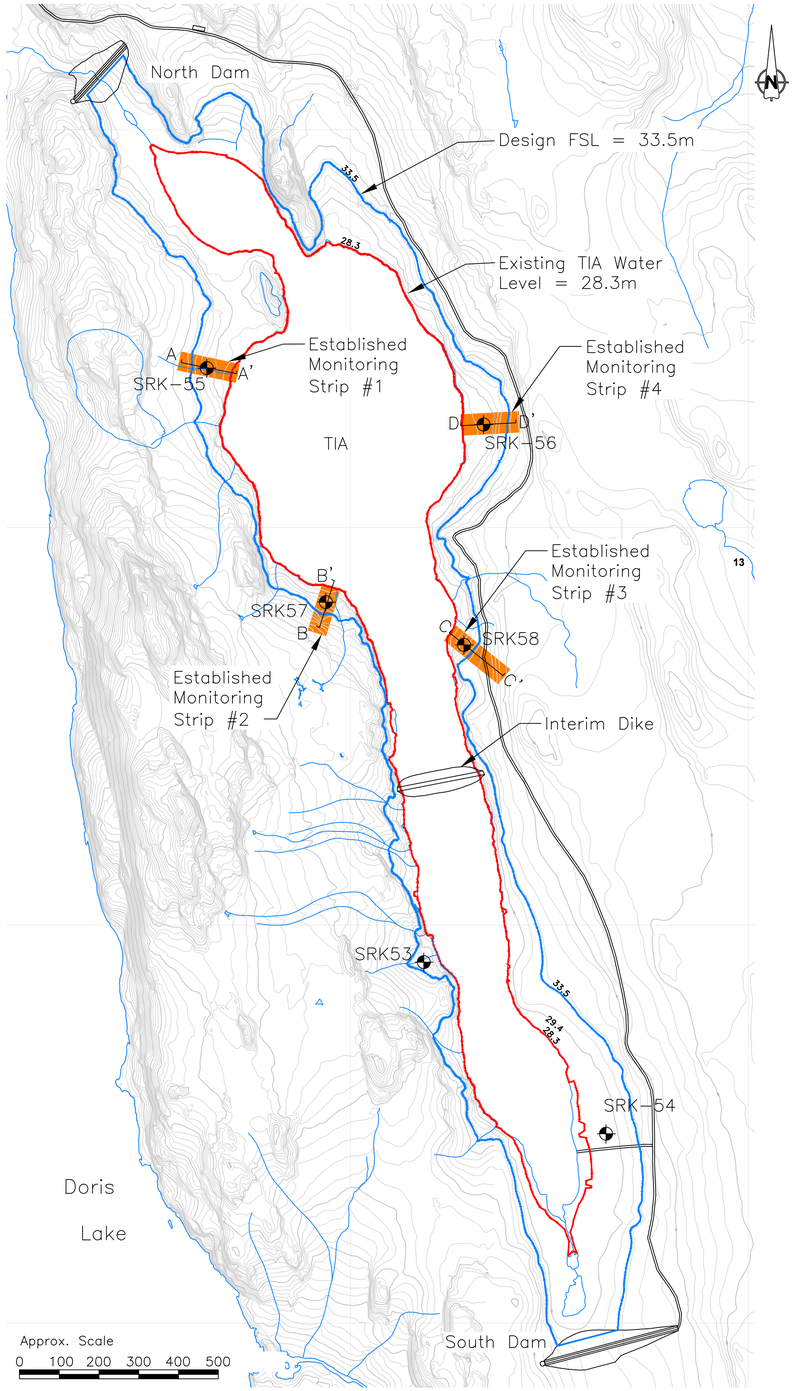
DORIS NORTH TIA OMS MANUAL

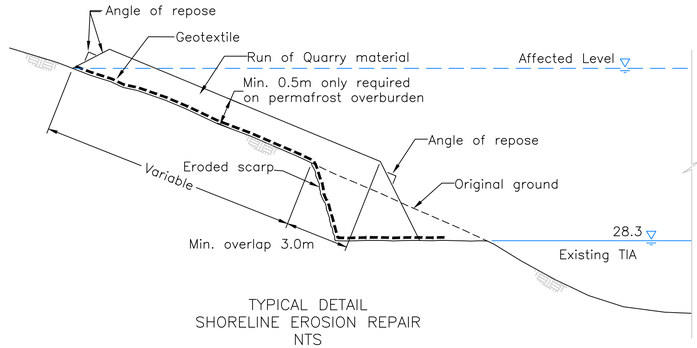
TAILINGS DEPOSITION PLAN
(COMPLETE AT YEAR 4 + 5 MONTHS)

DATE:	APPROVED:	FIGURE:
May 2016	EK/SA	10

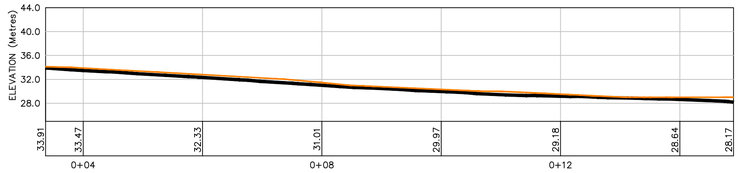


srk consulting	MAC RESOURCES	DORIS TIA OMS MANUAL		
		Water Management - Operations		
Job No: 1CT022.002.200.2000 Filename: 1CT022.022.200.2000_Figure14.pptx	Hope Bay Project	Date: May 2016	Approved: EK/SA	Figure: **11**

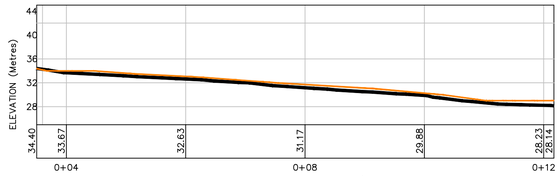




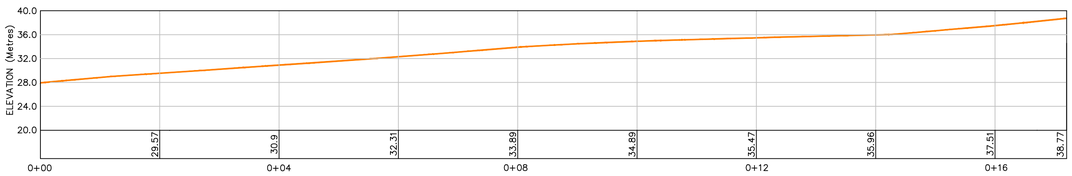
TYPICAL DETAIL
SHORELINE EROSION REPAIR
NTS



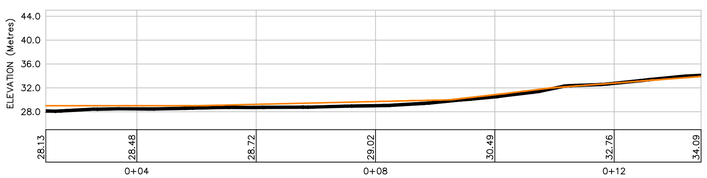
SECTION A–A'
ESTABLISHED MONITORING STRIP #1 PROFILE
NTS



SECTION B–B'
ESTABLISHED MONITORING STRIP #2 PROFILE
NTS



SECTION C–C'
ESTABLISHED MONITORING STRIP #3 PROFILE
NTS



SECTION D–D'
ESTABLISHED MONITORING STRIP #4 PROFILE
NTS

Legend

- Survey Data
- Topo Data
- SRK–54 Drill hole with Thermistor

Notes:

1. The established monitoring strips are areas that have been selected for monitoring of the continued progression of shoreline erosion. Each of these strips includes a drill hole with a thermistor.
2. The Run of Quarry material to be used for erosion protection can include fines, and a deviation of this material from the standard material specifications may be requested from the Engineer.

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SRK JOB NO.: 1CT022.002.200.2000

FILE NAME: 1CT022.002 – ShorelineErosion.dwg

TMAC RESOURCES

HOPE BAY PROJECT

DORIS NORTH TIA OMS MANUAL

Shoreline Erosion Protection Typical Details

DATE:	APPROVED:	FIGURE:
May 2016	EK/SA	12

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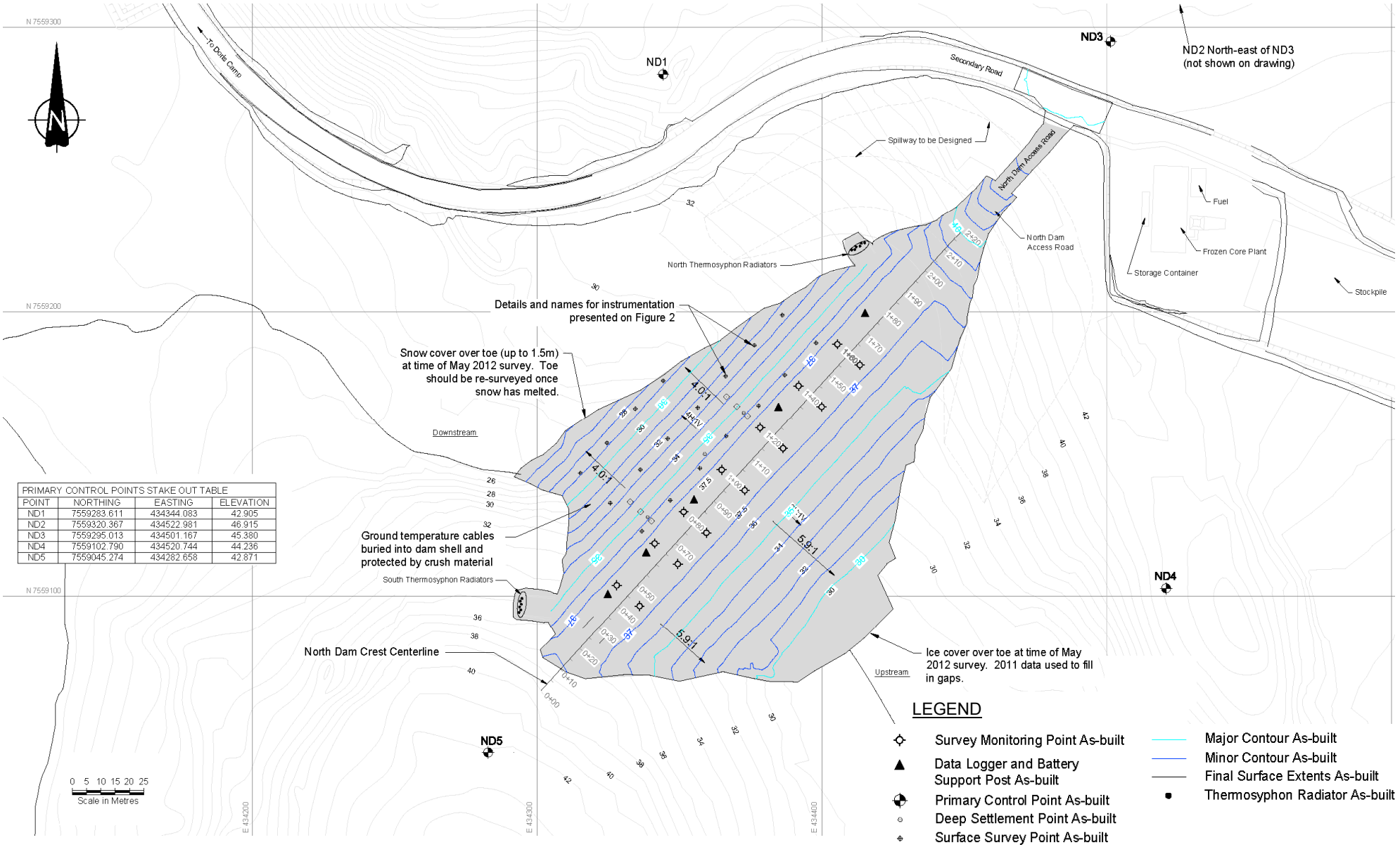

PRIMARY CONTROL POINTS STAKE OUT TABLE			
POINT	NORTHING	EASTING	ELEVATION
ND1	7559283.611	434344.083	42.905
ND2	7559320.367	434522.981	46.915
ND3	7559295.013	434501.167	45.380
ND4	7559102.790	434520.744	44.236
ND5	7559045.274	434282.658	42.871

LEGEND

- Survey Monitoring Point As-built
- Data Logger and Battery Support Post As-built
- Primary Control Point As-built
- Deep Settlement Point As-built
- Surface Survey Point As-built
- Inclinometer Location As-built
- Major Contour As-built
- Minor Contour As-built
- Final Surface Extents As-built
- Thermosyphon Radiator As-built

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TMAC RESOURCES

DORIS TIA OMS MANUAL

North Dam General Arrangement and Primary Control Points

Job No: 1CT022.002.200 Task 2000

Filename: HopeBay_DorisNorthTIA_OMS_Manaul_SA.pptx

HOPE BAY PROJECT

Date: May 2016

Approved: EK/SA

Figure: 13

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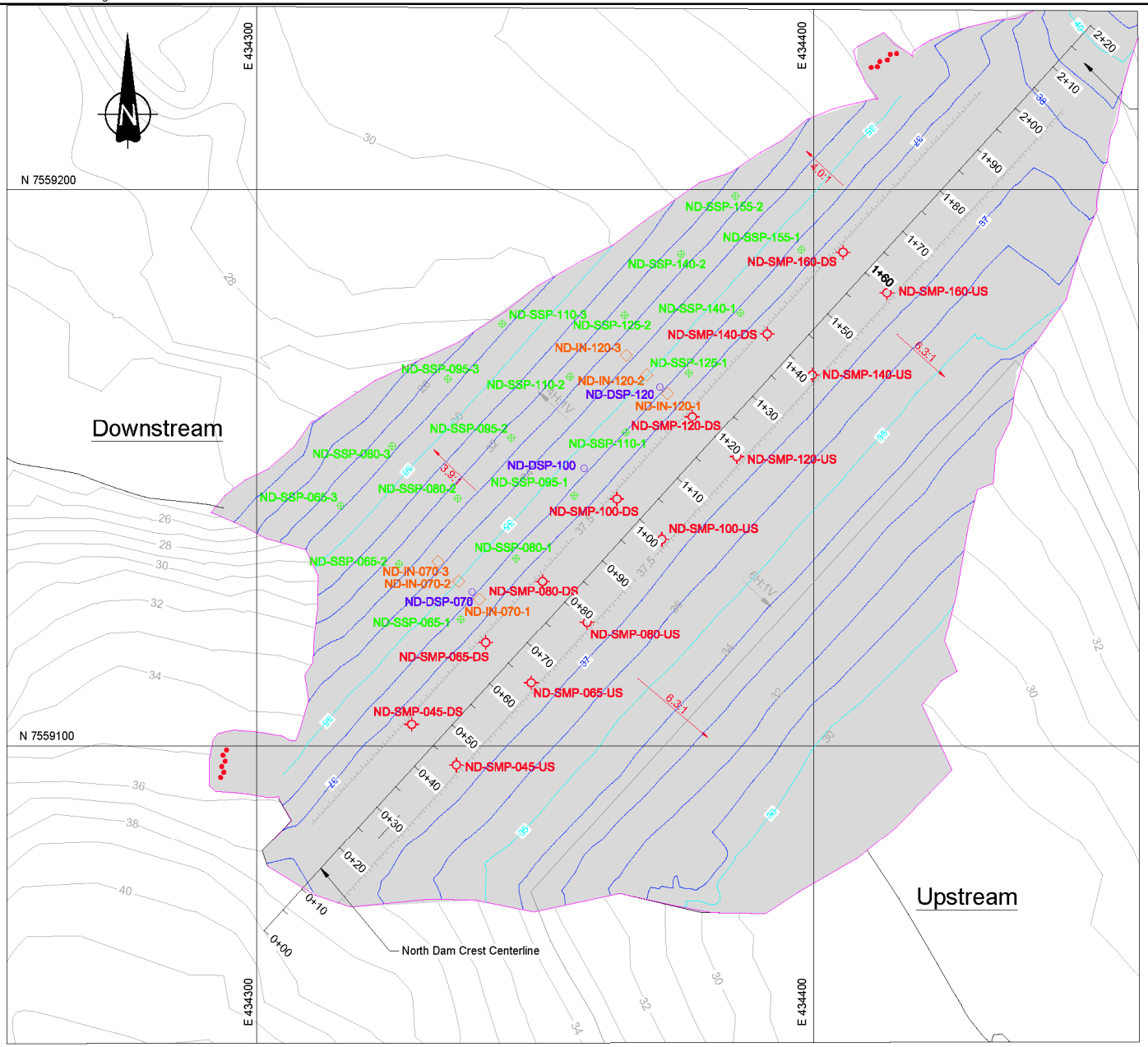

LEGEND

- Survey Monitoring Point As-built
- Deep Settlement Point As-built
- Surface Survey Point As-built
- Inclinometer Location As-built
- Major Contour As-built
- Minor Contour As-built
- Final Surface Extents As-built
- Thermosyphon Radiator As-built

AS-BUILT DEEP SETTLEMENT POINTS STAKEOUT TABLE

ID	Northing	Easting	Elev. (m)
ND-DSP-070	7559127.69	434338.65	36.95
ND-DSP-100	7559149.78	434358.75	36.86
ND-DSP-120	7559164.46	434372.37	36.92

AS-BUILT INCLINOMETER LOCATION STAKEOUT TABLE

ID	Northing	Easting	Elev. (m)
ND-IN-070-1	7559126.41	434340.00	37.44
ND-IN-070-2	7559129.63	434336.27	36.20
ND-IN-070-3	7559133.13	434332.57	34.85
ND-IN-120-1	7559163.31	434373.78	37.44
ND-IN-120-2	7559166.64	434370.03	36.05
ND-IN-120-3	7559170.15	434366.40	34.95

AS-BUILT SURFICIAL SURVEY POINTS STAKEOUT TABLE

ID	Northing	Easting	Elev. (m)
ND-SSP-065-1	7559122.80	434336.67	36.77
ND-SSP-065-2	7559132.67	434325.55	32.81
ND-SSP-065-3	7559143.10	434315.11	29.43
ND-SSP-080-1	7559133.65	434346.59	36.79
ND-SSP-080-2	7559144.37	434336.10	32.92
ND-SSP-080-3	7559153.75	434324.36	29.33
ND-SSP-095-1	7559144.90	434357.04	36.58
ND-SSP-095-2	7559155.21	434345.72	32.85
ND-SSP-095-3	7559165.92	434334.35	28.70
ND-SSP-110-1	7559156.20	434366.29	36.32
ND-SSP-110-2	7559166.31	434356.29	32.88
ND-SSP-110-3	7559175.79	434344.10	28.97
ND-SSP-125-1	7559166.97	434377.61	36.77
ND-SSP-125-2	7559177.37	434366.08	32.91
ND-SSP-140-1	7559177.75	434386.85	36.48
ND-SSP-140-2	7559188.28	434376.19	32.84
ND-SSP-155-1	7559189.07	434397.79	36.80
ND-SSP-155-2	7559198.85	434385.98	32.91

AS-BUILT SURVEY MONITORING POINTS STAKEOUT TABLE

ID	Northing	Easting	Elev. (m)
ND-SMP-065-DS	7559118.52	434341.14	38.46
ND-SMP-065-US	7559111.31	434349.30	38.36
ND-SMP-080-DS	7559129.57	434351.35	38.41
ND-SMP-080-US	7559122.27	434359.34	38.40
ND-SMP-100-DS	7559144.32	434364.71	38.39
ND-SMP-100-US	7559137.12	434372.77	38.46
ND-SMP-120-DS	7559159.12	434378.24	38.41
ND-SMP-120-US	7559151.88	434386.24	38.46
ND-SMP-140-DS	7559173.98	434391.69	38.39
ND-SMP-140-US	7559166.62	434399.77	38.42
ND-SMP-160-DS	7559188.64	434405.30	38.40
ND-SMP-160-US	7559181.37	434413.18	38.43

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TMAC RESOURCES

DORIS TIA OMS MANUAL

North Dam Instrumentation Layout

Job No: 1CT022.002.200 Task 2000

Filename: HopeBay_DorisNorthTIA_OMS_Manaul_SA.pptx

HOPE BAY PROJECT

Date: May 2016

Approved: EK/SA

Figure: 14

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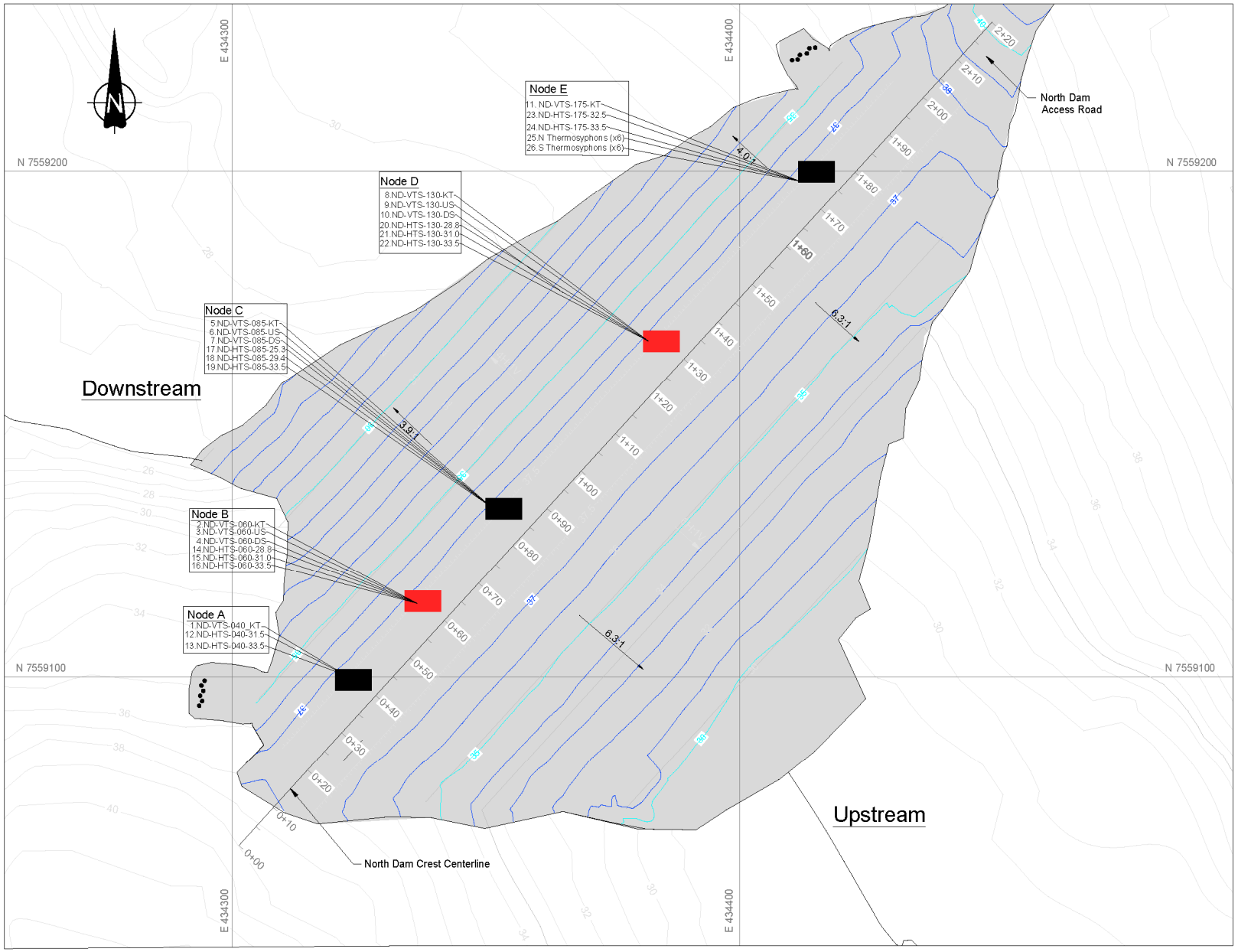

LEGEND

- Major Contour As-built (5m)
- Major Contour As-built (1m)
- Final Surface Extents As-built
- Thermosyphon Radiator As-Built

Note: the two weatherproof enclosures which house the data loggers are shown in red.

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TMAC RESOURCES

Job No: 1CT022.002.200 Task 2000

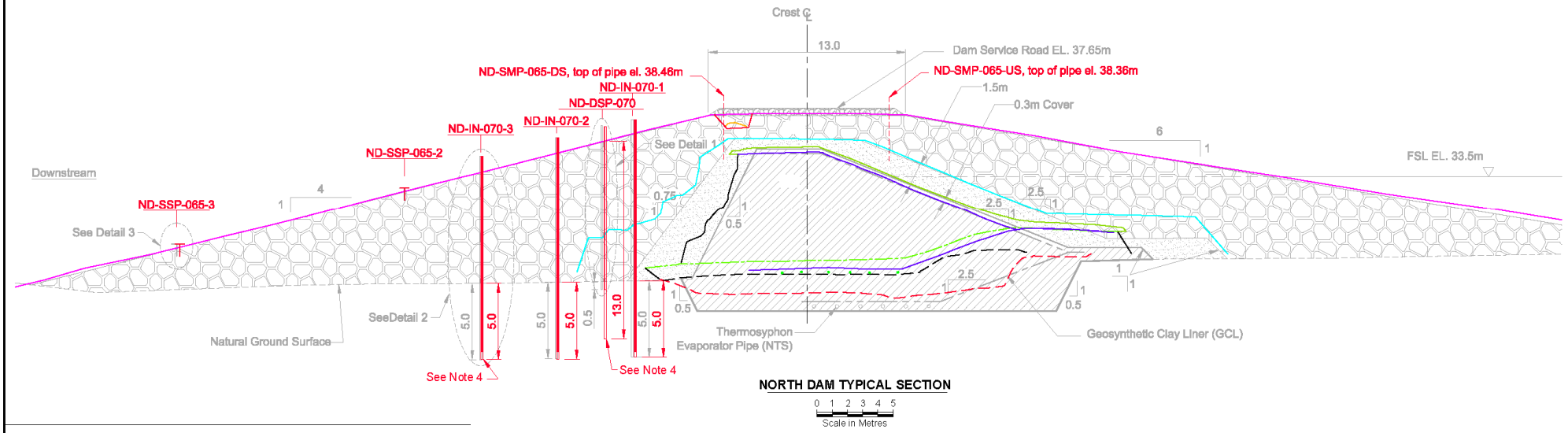
Filename: HopeBay_DorisNorthTIA_OMS_Manaul_SA.pptx

HOPE BAY PROJECT

DORIS TIA OMS MANUAL

North Dam Ground and Thermosyphon Temperature Cable Locations

Date:	Approved:	Figure:
May 2016	EK/SA	**15**



- Core Material
- Transition Material
- Run of Quarry (ROQ)
- Surfacing Material
- Bedrock
- Peat

- GCL As-built
- Core Material As-built
- Core Material (2011) As-built
- Levelling Course (Core Material) As-built
- Instrumentation Trench Cover As-built
- Key Trench / Instrumentation Trench As-built
- GCL Cover Material As-built
- Transition Material As-built
- ROQ Material As-built
- Thermosyphon Evaporator Pipes As-built

Example of as-built instrumentation installed on the downstream of dam.

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TMAC RESOURCES

DORIS TIA OMS MANUAL

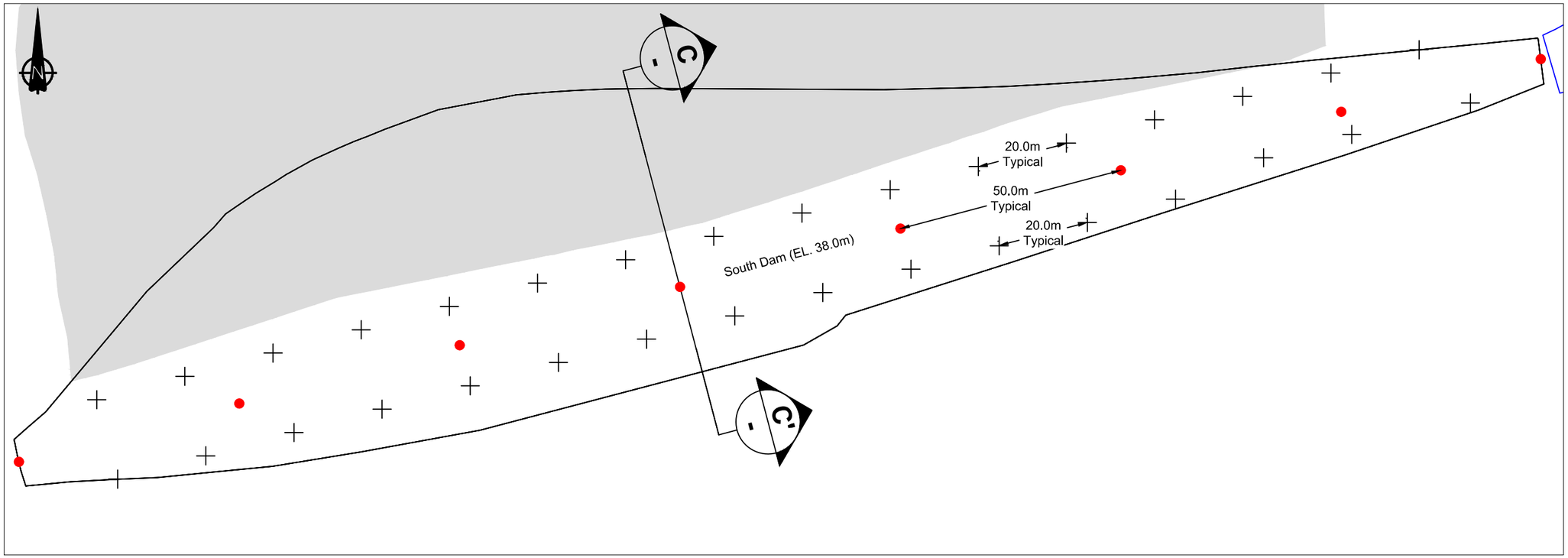
North Dam Deformation Monitoring Instrumentation Layout

Job No: 1CT022.002.200 Task 2000

Filename: HopeBay_DorisNorthTIA_OMS_Manaul_SA.pptx

HOPE BAY PROJECT

Date:	Approved:	Figure:
May 2016	EK/SA	16



LEGEND

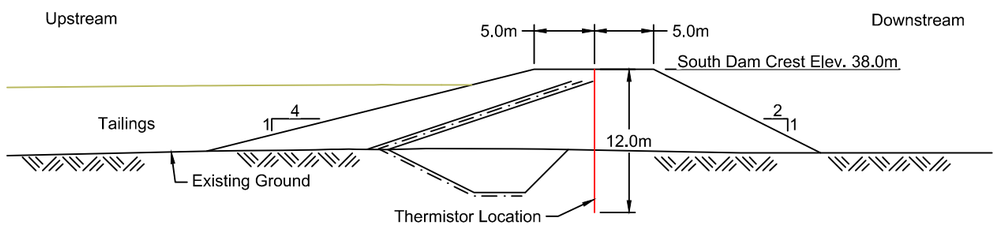
- Proposed Thermistor Location
- Proposed Monitoring Point Location
- Proposed Tailings Surface

NOTES

1. Contours shown at 1.0m interval.
2. Thermistors shall be installed through the centerline of the dam every 50m to a depth of 12m.
3. The dam crest shall have survey monitoring points at 20m intervals on the upstream and downstream sides.

PROPOSED SOUTH DAM INSTRUMENTATION

0m 10 20 30 40



C - TYPICAL SECTION THROUGH SOUTH DAM

0m 10 20 30 40

srk consulting	TMAC RESOURCES	DORIS NORTH TIA OMS MANUAL	
SRK JOB NO.: 1CT022.002.2000	HOPE BAY PROJECT	South Dam Monitoring Instrumentation	
FILE NAME: 1CT022.002 - Instrumentation Plan_Figure21.dwg		DATE: May 2016	APPROVED: EK/SA / DRAWING: 17

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APPENDIX A:
SUMMARY OF CURRENTLY AVAILABLE DUST CONTROL PRODUCTS

SRK Consulting (Canada) Inc.
2200–1066 West Hastings Street
Vancouver, BC V6E 3X2

T: +1.604.681.4196
F: +1.604.687.5532
vancouver@srk.com
www.srk.com

Memo

To:	John Roberts	**Client:**	TMAC Resources Inc.
From:	Erik Ketilson, Maritz Rykaart	**Project No:**	1CT002.022
Cc:		**Date:**	June 13, 2016
Subject:	Summary of Currently Available Dust Control Products		

Dust Management

TMAC's primary dust mitigation method for the TIA, will be the use of water. However, should this not achieve the required results, TMAC will make use of commercial chemical dust suppressants. Chemical dust suppressants are routinely used at mining projects as dust mitigation strategy for tailings, roads and airstrips.

The table below summarize three of the most commonly used chemical dust suppressants, and Attachments 1, 2 and 3 includes commercial reference material for each. TMAC has consulted with these manufacturers, who have confirmed that based on the typical particle size distribution testing available for the tailings, these products will all be suitable. The Doris tailings particle size distribution consists of sandy fine to coarse silt, with 56% (46% silt and 10% clay) passing the No. 200 sieve (75 micron). They will however not provide TMAC with a mixing and application rate, until they complete material specific testing in their in-house testing laboratories. TMAC will defer such testing until full-scale tailings production is in place and representative samples can be collected.

EK-35, listed in the table below is currently approved for use by TMAC at the Hope Bay site. This product has been used as a dust suppressant on roads and the airstrip.

Chemical Suppressant	Example Clients	Comments	Manufacturer	Reference Material
Soil-Sement	NewGold; Glencore; Asarco; Capstone; FMI; INAC (Giant Mine)	Water soluble product used at most mines for tailings dusting issues. Observed to be successful at the appropriate application rate irrespective of tailings particle size distribution. Not suitable for areas of vehicle traffic. Manufacturer offers site specific testing to confirm, if required.	Midwest Industrial Supply, Inc. (303) 456-3121	Attachment 1
EK-35	HudBay (underground mine roads); Baffinland Mary River Mine (surface gravel roads)	Synthetic fluid used in road applications, and capable of withstanding vehicle traffic. Observed to be successful at the appropriate application rate irrespective of particle size distribution.	Midwest Industrial Supply, Inc. (303) 456-3121	Attachment 2

Chemical Suppressant	Example Clients	Comments	Manufacturer	Reference Material
DustCap	Confidential (Supplier will not divulge client names without prior approval)	Biodegradable product. Appropriate application rate specified for various particle size distributions. Not suitable for areas of vehicle traffic. Manufacturer offers site specific testing to confirm application rates, if required.	Terra Novo (888) 843-1029	Attachment 3

Attachment 1: Soil-Sement

Soil-Sement®

Control Dust, Erosion, Unstable Soil

Enjoy a customized solution for better performance.

When it comes to clothing, "one size fits all" is truly an ominous label because unless your body is in line with what the manufacturer considers the norm, that hat, tee shirt, or underwear is not going to fit you!

One reason Midwest's environmentally safe Soil-Sement polymer emulsion for controlling dust, erosion and unstable soil is used across dozens of industries and on many different soils is that it is not a one-size-fits-all product. It is custom-engineered to perform optimally on your soil taking into account a range of factors including dry strength, wet strength, ductility, elasticity, UV resistance, climate, and many others.

Nanotechnology enables Soil-Sement to be as strong as steel or as resilient as rubber.

In test after independent test, Soil-Sement has proved to be the most effective – and cost-effective – soil stabilizer for controlling PM10 and PM2.5 dust emissions.

Vital statistics

- Is non-toxic, non-corrosive, non-flammable
- Does not pollute groundwater
- Stabilizes surface to resist shifting, breaking up and sink failures
- Stands up to wind, rain, UV light, and other weather conditions
- Increases load-bearing strength
- Prevents water from destabilizing road surface
- Dries clear for an aesthetically pleasing appearance
- Keeps you in regulatory compliance.

MIDWEST
Consider it done.

A different kind of molecule

Nanotechnology enables our scientists to control matter on an atomic and molecular scale. Soil-Sement's effectiveness results from the length and strength of its unique polymer molecule formulation, which enables molecules to bond well with surface materials. Its molecules link to one another in relatively straight chains, which cross-link with other chains or grids forming a matrix that may be 1,000,000 molecules long.

This structure creates surfaces that are stronger and more flexible than the smaller molecular structure of oil, calcium, petroleum resin and asphalt emulsion products, which range from 100 to 10,000 molecules.

Independent testing – the key to buyer confidence

Soil-Sement is the only polymer emulsion certified and verified by so many independent agencies:

- US EPA ETV
- Cal-Cert
- CARB (California Air Resources Board Documentation)
- Canada ETV
- US Army Corp of Engineers
- ADEMA (Arizona Department of Emergency and Military Affairs)
- San Diego State University
- Midwest Research Institute
- ERDC (Engineer Research and Development Center)
- Desert Research Institute

Easy to be green

With chemists in our lab and experts on our customers' sites, Midwest has the home-grown ability to manufacture products that will not harm the environment and, in many instances, will help it. Our chemists think green from source materials all the way to application.

Learn more about Midwest

Midwest is a world leader in effective and environmentally-sound dust control, erosion control, soil stabilization and anti-icing solutions. To learn more or ask us any questions, contact us at 1.800.321.0699.

Inc. 5000 HONOR ROLL FIVE-TIME HONOREE

1.800.321.0699
www.midwestind.com

MIDWEST
Consider it done.

SOIL-SEMENT CASE STUDY

Dust Control

Curbing fugitive dust problems at a Canadian mine disposal site

Background.
Winter freezing causes the surface at mine tailing disposal sites to freeze dry, which makes it a source of fugitive dust.

Problem.
A 400-acre Canadian disposal site needed treatment to eliminate dust in the winter months preceding the arrival of snow.

Solution.
Midwest used conventional vehicles and tracked units to apply a durable Soil-Sement sealed surface. Soil-Sement has the unique ability to eliminate fugitive dust and airborne particles because it chemically bonds and seals the surface to prevent wind from lifting fines and creating dust. Depending on site objectives, Soil-Sement applications can be tailored to be effective for just several months or for up to a year or longer.

Soil-Sement® has the unique ability to eliminate fugitive dust and airborne particles because it chemically bonds and seals the surface to prevent wind from lifting fines and creating dust.

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Attachment 2: EnviroKleen and EK35

EnviroKleen® and EK35®
Synthetic Organic Dust Control®

Tough on Dust, Easy on the Environment

Runway or roadway, concert venue to construction site to unpaved open area, if the problem is fugitive dust or an unstable surface, the antidote is Midwest's EnviroKleen or EK35. Like all Midwest products, these powerful synthetic organic fluids are reliably consistent and consistently reliable month-to-month, season-to-season, and year-to-year.

Created in Midwest's own laboratory, EnviroKleen and EK35 were the first Synthetic Organic Dust Control products on the market. Unique in the industry, both products have binder systems that capture fines and keep them locked into the surface, preventing dust from escaping. We formulated both products to be as gentle on the environment as they are tough on dust and unstable surfaces.

EnviroKleen and EK35 are ranked first in all categories tested by the US Army Corps of Engineers.

Vital statistics

- EPA-verified safe for people and the environment
- EPA-verified effective for reducing PM_{10} and $PM_{2.5}$
- Certified non-corrosive by Boeing
- Creates pavement-like strength; enhanced by traffic
- Can be reworked without reapplication
- Does not evaporate or leach out of the surface
- Performs well at extreme temperatures
- Can be stored at temperatures down to -50° F
- Readily biodegradable in natural environments
- Works with all types of soils and aggregates

MIDWEST

Why EnviroKleen and EK35?

Treating a symptom like dust is a temporary band-aid. Midwest goes after the *root cause* of a problem like surface instability and works tenaciously and without compromise until we find the optimal solution. In this case, the solution is the Synthetic Organic Dust Control and the binding technology we invented for use in the manufacture of EnviroKleen and EK35.

EnviroKleen is formulated with a polymeric binder; EK35 with a resin binder made from renewable resources. Both products are superior choices for industrial, construction, and municipal applications. They quickly penetrate dust and remain actively effective on clay, sand, gravel, limestone, and most native soils regardless of the weather or how severe the traffic. That is because their binder systems interlock and durably bind surface aggregate and fines together through both cohesive and adhesive mechanisms. As fines are generated, they are captured, preventing them from escaping as dust. EnviroKleen and EK35 are cost-effective for controlling PM10 and PM2.5 from open fugitive dust sources, and unlike other available products they will not track onto public roadways or stick to vehicles. Both products provide longer-lasting performance and require fewer applications than other dust control and surface stabilization methods - regardless of season.

Managing fines with EnviroKleen and EK35 can save tens of thousands of dollars annually during the lifecycle of a surface.

Compare EnviroKleen and EK35 to Other Dust Control Methods

Performance Benefits	EnviroKleen and EK35 Synthetic Organic Fluids	Water	Road Salts[1]	Asphalt Emulsions	Petroleum Resins	Lignin
Longer lasting	●			●	●	
Year-round protection	●[2]		●			
Passes EPA static sheen test	●	●	●			
Non-petroleum product	●	●	●			●
Colorless	●[2]	●	●			
Not water-soluble/cannot be diluted	●					
No poly-nuclear aromatic hydrocarbons (PAH)	●	●				●
Will track				●	●	●
Sprayable gallons required for a 1-mile x 30' wide road	1,800	550,000	8,825	18,480	13,200	5,280
Storm drain risk	Low	Low	High	High	High	High

[1]Road salts are sodium chloride, calcium chloride, potassium chloride, magnesium chloride and ferrocyanide salts.
[2]EnviroKleen passes the EPA static sheen test and is colorless.

Conventional dust control methods can create greater problems than the dust itself —lingering environmental and health concerns, for example. Alternatives like water provide short-term solutions that involve labor-intensive, multiple applications.

Easy to be green

With chemists in our lab and experts on our customers' worksites, Midwest has the home-grown ability to manufacture products that will not harm the environment and, in many instances, will help it. Our chemists think green from source materials to formulation and from product to application.

Special Delivery — The E-Sprayer™ System

The "E" in E-Sprayer System, an efficient product-dispensing solution, stands for EnviroKleen and EK35, the products for which it was specifically designed. Portable, versatile and compact, the E-Sprayer can be mounted on any light-duty truck from an F-150 flatbed one-ton trailer to a military Humvee. Powered by a 4.7-hp Diesel/JP8 fuel electric start engine and Gorman-Rupp pump, the E-Sprayer requires only one person to operate and facilitates universal application with an 8-foot spray bar. Flow is easily controlled with the throttle or motorized regulator.

Tested and verified - independently

Midwest believes in proving claims, rather than just making them, so our clients can be sure they are getting what they pay for from both performance and environmental perspectives.

- US EPA ETV* test data verifies that EnviroKleen and EK35 are safe for people and the environment as well as effective in suppressing PM_{10} and $PM_{2.5}$ levels. No other synthetic fluids have achieved this designation.
- EnviroKleen and EK35 comply with requirements of the Clean Water Act and National Pollution Discharge Elimination System and realize fines preservation for surface stability and dust control.
- The synthetic organic fluid in each product meets the criteria for the term synthetic as established by the US EPA for sediment toxicity, biodegradability, PAH content, aquatic toxicity, and being oil-sheen free.
- The non-corrosive properties of EnviroKleen and EK-35 have been certified by Boeing Document D6-17487, the most stringent corrosion standard in the United States.

The protocols Midwest uses in testing its products under US EPA guidelines are 200 times more stringent than those used by our competitors. Proof of these verifications and certifications are available any time from Midwest. Before considering other dust-control solutions, remember to ask for such proof to protect yourself from false claims.

**U.S. Environmental Protection Agency's Environmental Technology Verification Program*

Choice of the Military: EnviroKleen and EK35 in Action

Clear vision is a military necessity, but the conditions in which our forces operate fly in the face of that need. Dust, sand and dirt obstruct vision and also attack and weaken critical vehicle and aircraft parts. The US Military chooses EnviroKleen and EK35, ranked first in all categories tested by the US Army Corps of Engineers, to enhance safety and visibility for CH-46 Chinook and CH-53 Sea Stallion helicopter pilots.

Preserving Gravel Runways in Cold Regions

EnviroKleen and EK35, the backbone of Midwest's Fines Preservation programs, are able to stabilize gravel runway surfaces, increase their strength, and preserve service life by keeping the fines bound to the surface. Applied in extreme temperatures, both products are applied neat and remain active and re-workable. The result? Fines preservation programs can achieve an 80% decrease in dust levels for up to four years and a decrease in runway lifecycle costs of 70%, or up to $40,000 in annual savings. As many as two- to five cubic meters of fines are saved at every take-off and landing on treated runways. Learn more about our gravel runway resources at www.gravelrunway.com.

If the shoe doesn't fit...

One size fits all does not always make for a good fit; unique problems require unique solutions. Midwest is a particle-control pioneer, not a me-too company. Our product development begins with a challenge and ends when we produce a solution that proves its worth in the field. Off-the-shelf is fine when it works, but when it does not, Midwest has the capability and tenacity to engineer a formula for your specific needs.

More reasons to choose Midwest

Midwest is the world leader in environmentally-sound, dust-control technology for every application where fugitive dust is a problem. We bring our customers more solutions, documentation and support than any other manufacturer. On a daily basis, we challenge ourselves to become even more accessible problem solvers so we can set a new industry standard for proactive and responsive service. Pushing the envelope is part of our corporate DNA, and we strive, always, to develop cutting-edge processes, products and services; stay on top of the learning curve, and educate our customers for our mutual success.

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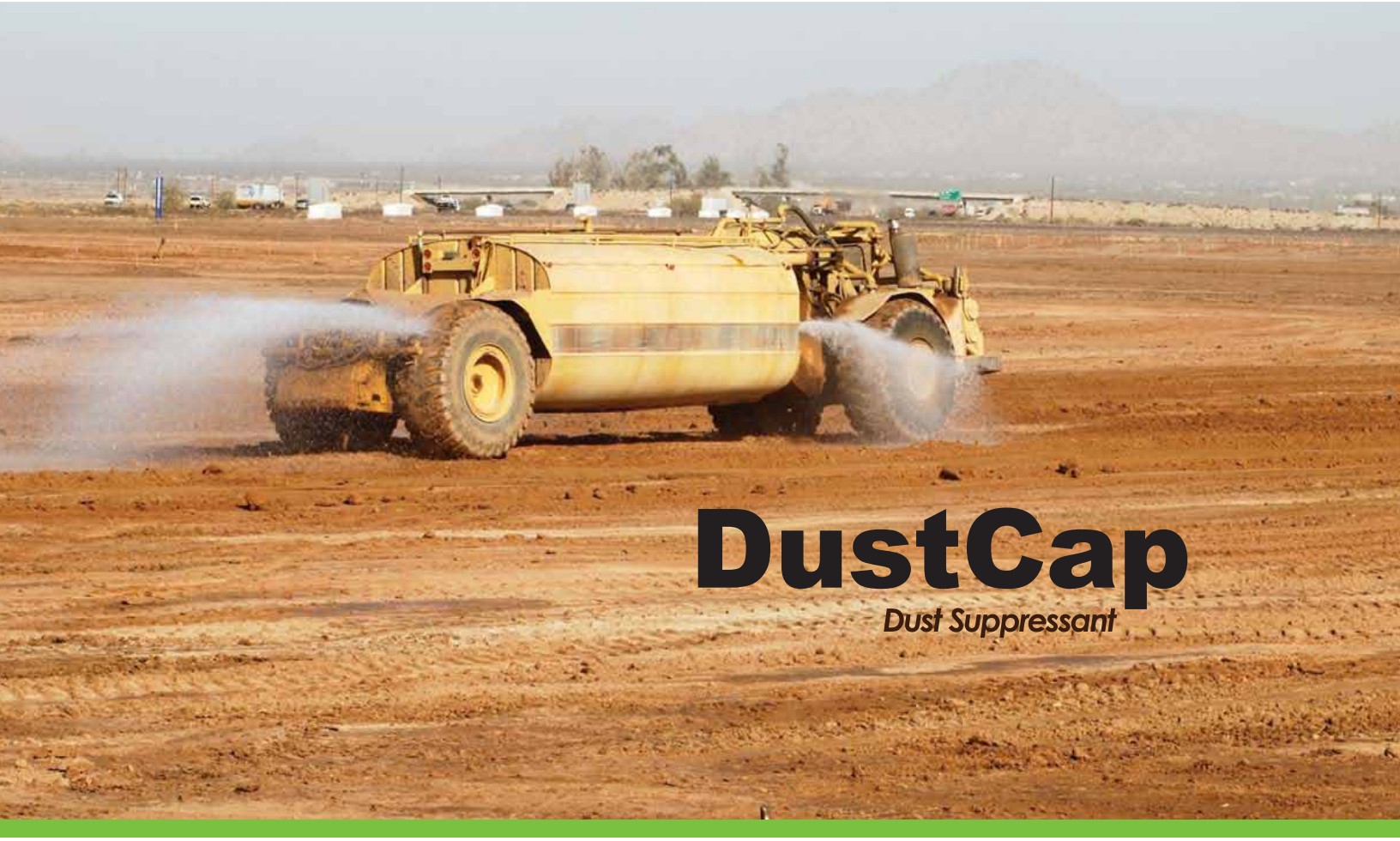
MIDWEST

Attachment 3: DustCap



DustCap

Dust Suppressant

Dust Suppression Without Limits

It has been known for many years that soil particles owe their stability in part to the presence of naturally occurring polymeric materials which bind to the soil. DustCap is a polymeric soil stabilizer designed to hold together soil structure, similar to the effect of the organic matter found in most soils. DustCap protects the soil structure by binding to soil crumbs, reducing crumb breakdown, and by creating a cap to further resist environmental attack. Application of DustCap reduces erosion up to 95% and creates excellent resistance to weatherability. DustCap is a superior choice for capping dirt fields and construction sites, yielding months of protection against wind and water erosion.

BENEFITS

- *Reduces Wind Erosion*
- *Highly Efficient*
- *Soil Stabilizer*
- *Biodegradable*
- *Non-Toxic*

APPLICATIONS

Construction Sites
Oil Fields
Roads
Ag Land
Stockpiles
Campgrounds

ECTC Member

IECA Member

www.terranovo.com/dust

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Application Rates & Techniques

DustCap
Dust Suppressant

APPLICATION

As with all dust suppressants, application rates and methods depend upon the site, environment, soil type, and more. Each site is unique, and as such, the following application rates are based on averages in the field. In some situations such as high wind, powdery soil, etc., increasing application rates by 1.25-1.5 times may be required.

Soil Type	Gallons / Acre	Minimum Dilution Rate
Clay	*15*	*150:1*
Silt	*10*	*200:1*
Sand	*5*	*300:1*

Some circulation is needed to complete the inversion of the product. The product is readily dispersible in water and it is advised to have the ability to recirculate the water tank on itself to mix. About 5 minutes of mixing is adequate.

Cure time for DustCap is just under four hours on a typical sunny day.

SURFACE PREPARATION

When possible, grading the surface soil will greatly improve DustCap's penetration, thereby enhancing the lifetime of the product. The product can also be applied directly onto the soil without any surface preparation.

SAND SIEVE ANALYSIS

Sand Sieve Analysis is a practice or procedure used to assess the particle size distribution of granular material. The size distribution is critical in determining the type of dust suppressant needed and application rates to be used. The practice of Sieving is quick and accurate, measuring the maximum diameter of a sediment grain. There are four aspects of this proven test, including sizing, sorting, kurtosis, and skewness. After the analysis, we can determine the percent sand, silt and clay in your soil, and textural class, thereby recommended an accurate application rate and method for your needs.

Particle Grade	Size (mm)	Surface Preparation
very coarse	1-2	Optional grading of the surface to extend product lifetime, but not necessary.
medium sand	0.25-0.50	
fine sand	0.125-0.25	
silt	0.0039-0.0625	
clay	less than 0.0039	

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ABOUT US

Terra Novo is dedicated to helping the Storm Water and Erosion Control industry comply with strict Federal Clean Water regulations. We provide cost-effective Best Management Practice solutions that more and more erosion control and storm water specialists are turning to. Our engineers and chemists pride themselves by maintaining a hands on approach to solving site-specific problems. We have developed product lines for erosion control, dust control and storm water run-off with the end user in mind. All of our products are highly effective, extremely affordable, and environmentally friendly.

For technical services, call 1-888-843-1029 or visit us online at www.terranovo.com.

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