# Riverside Dyke Restoration Project
# From B.C. To Regina

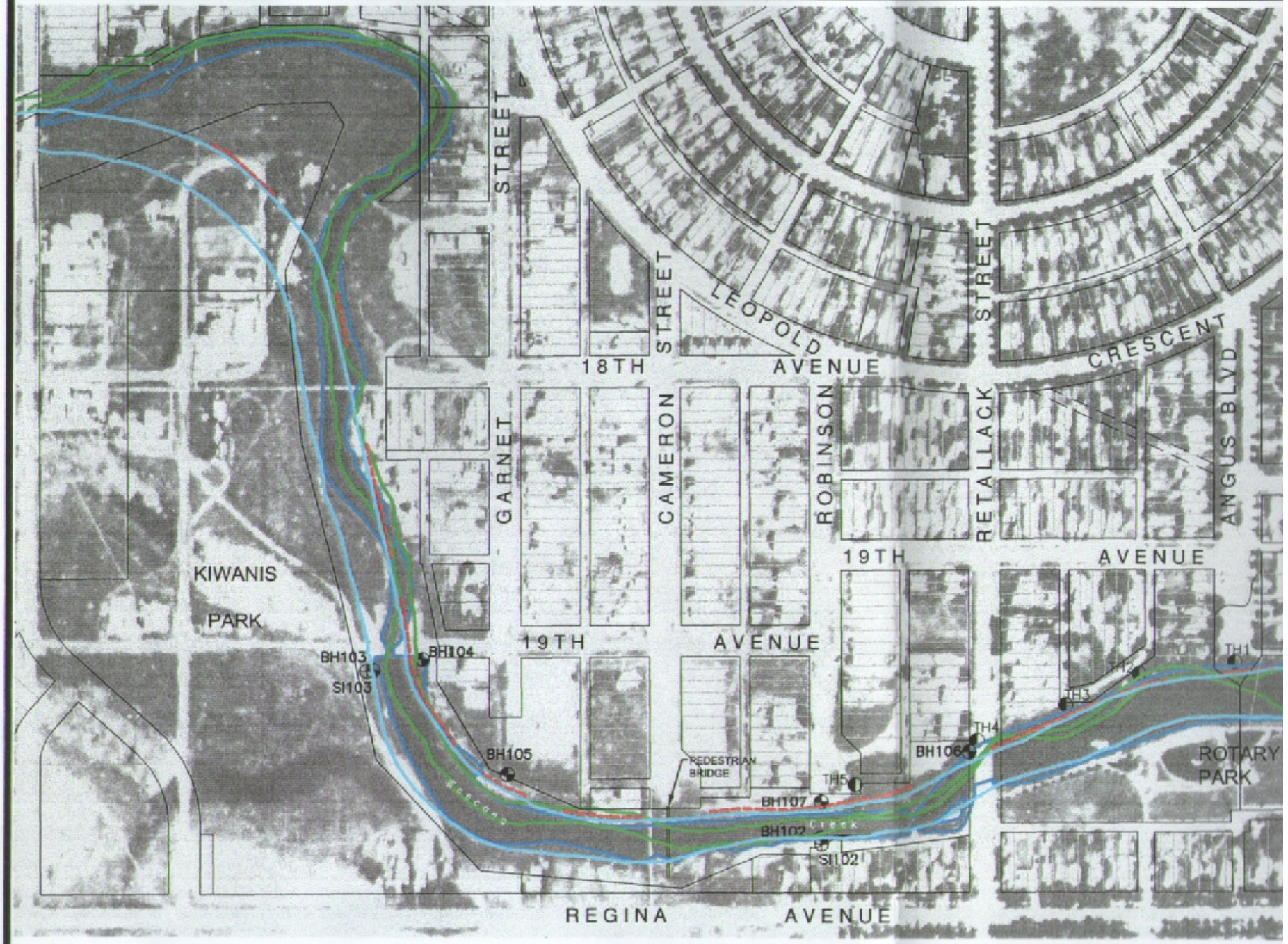
2017 Native Prairie Restoration/Reclamation Workshop

February 8-9, 2017

Ramada Plaza, Regina, Saskatchewan

Jim Elliott, Wascana Preservation Association (WPA)

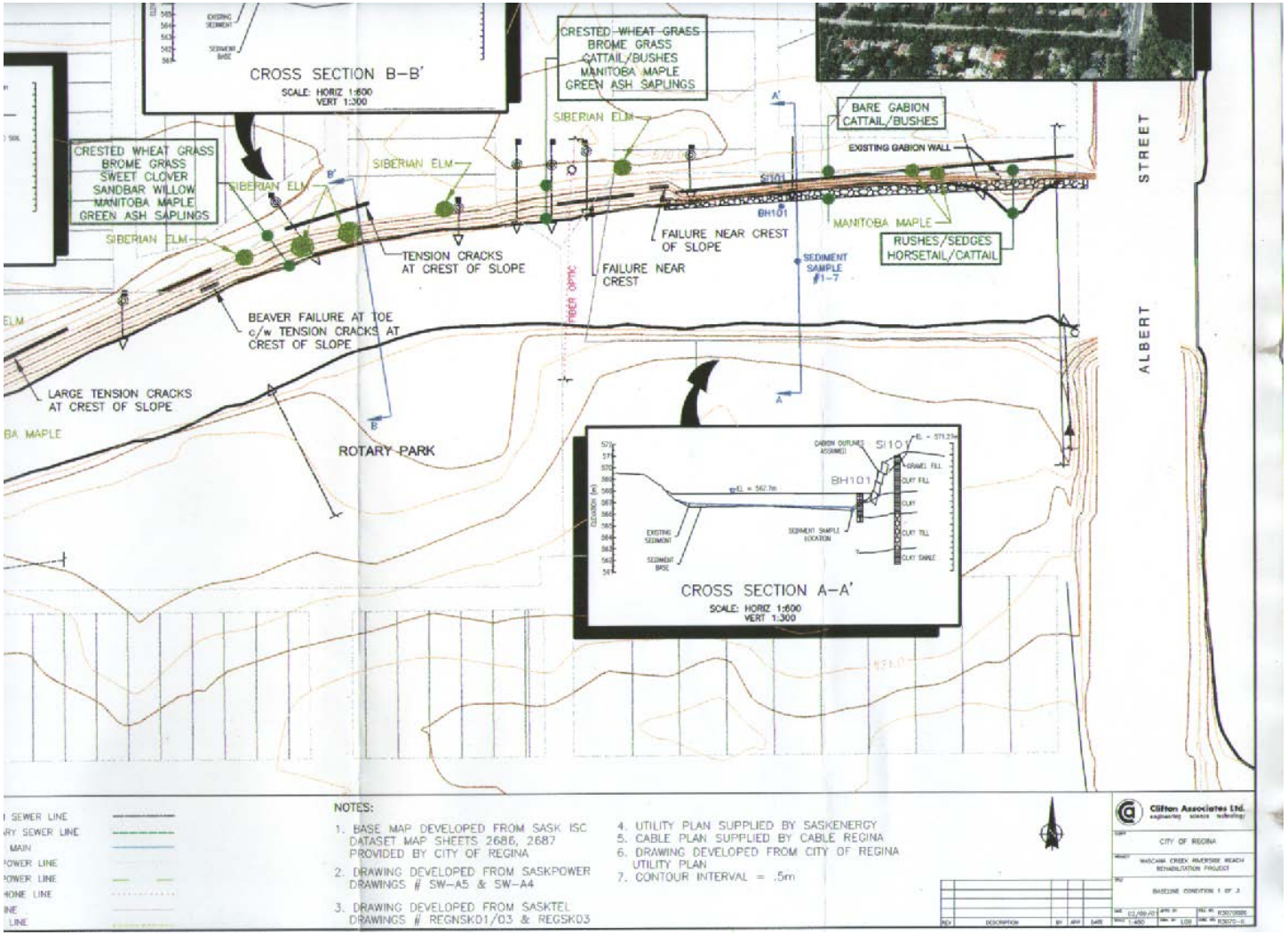
# Wascana Creek Flood 1970s

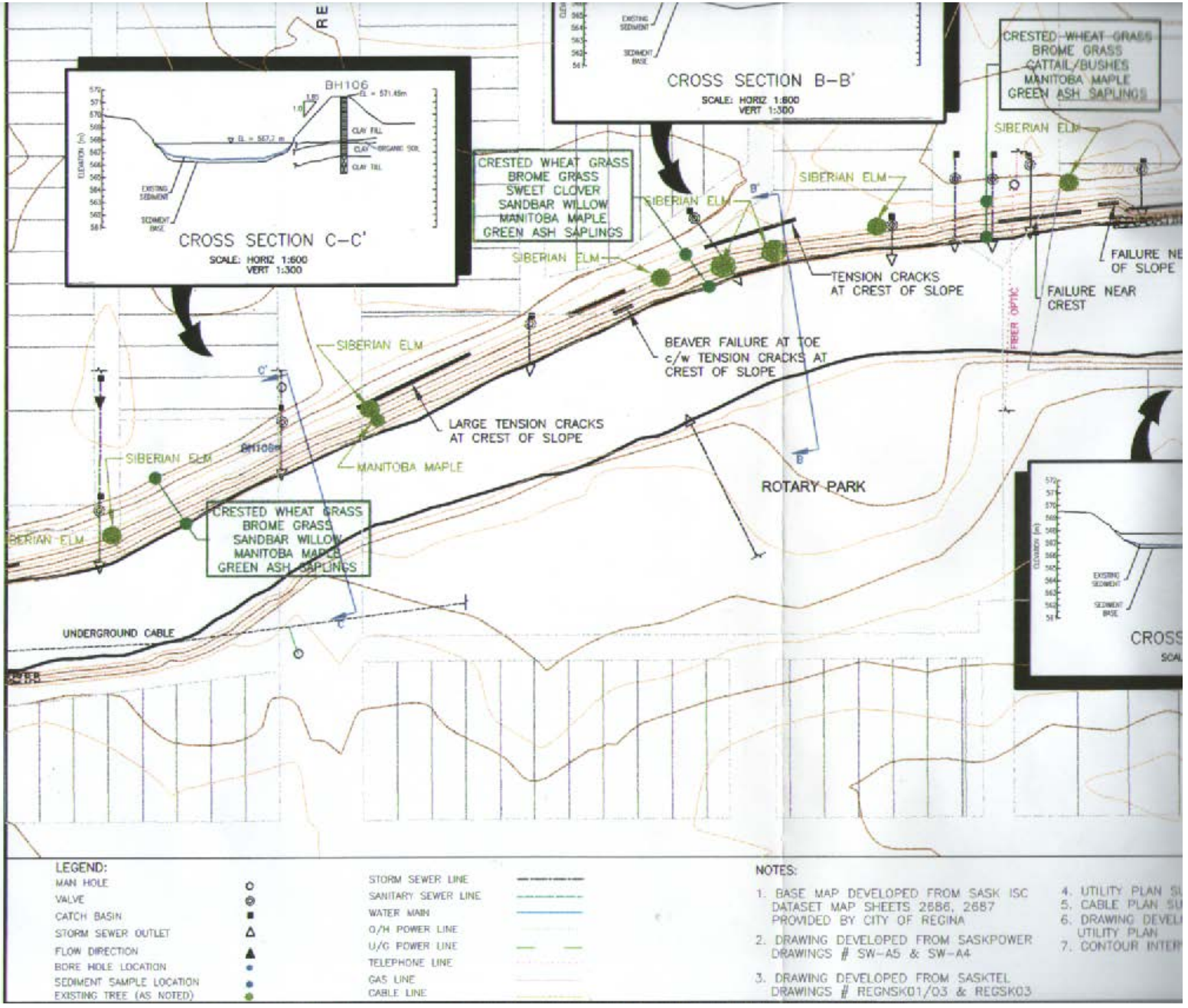

STREET
18TH STREET
LEOPOLD AVENUE
STREET
CRESCENT
ANGUS BLVD
GARNET
CAMERON
ROBINSON
RETALLACK
19TH AVENUE
19TH AVENUE
KIWANIS PARK
BH103
SI103
BH104
BH105
PEDESTRIAN BRIDGE
BH106
TH1
TH2
TH3
TH4
TH5
BH107
BH102
SI102
ROTARY PARK
REGINA AVENUE

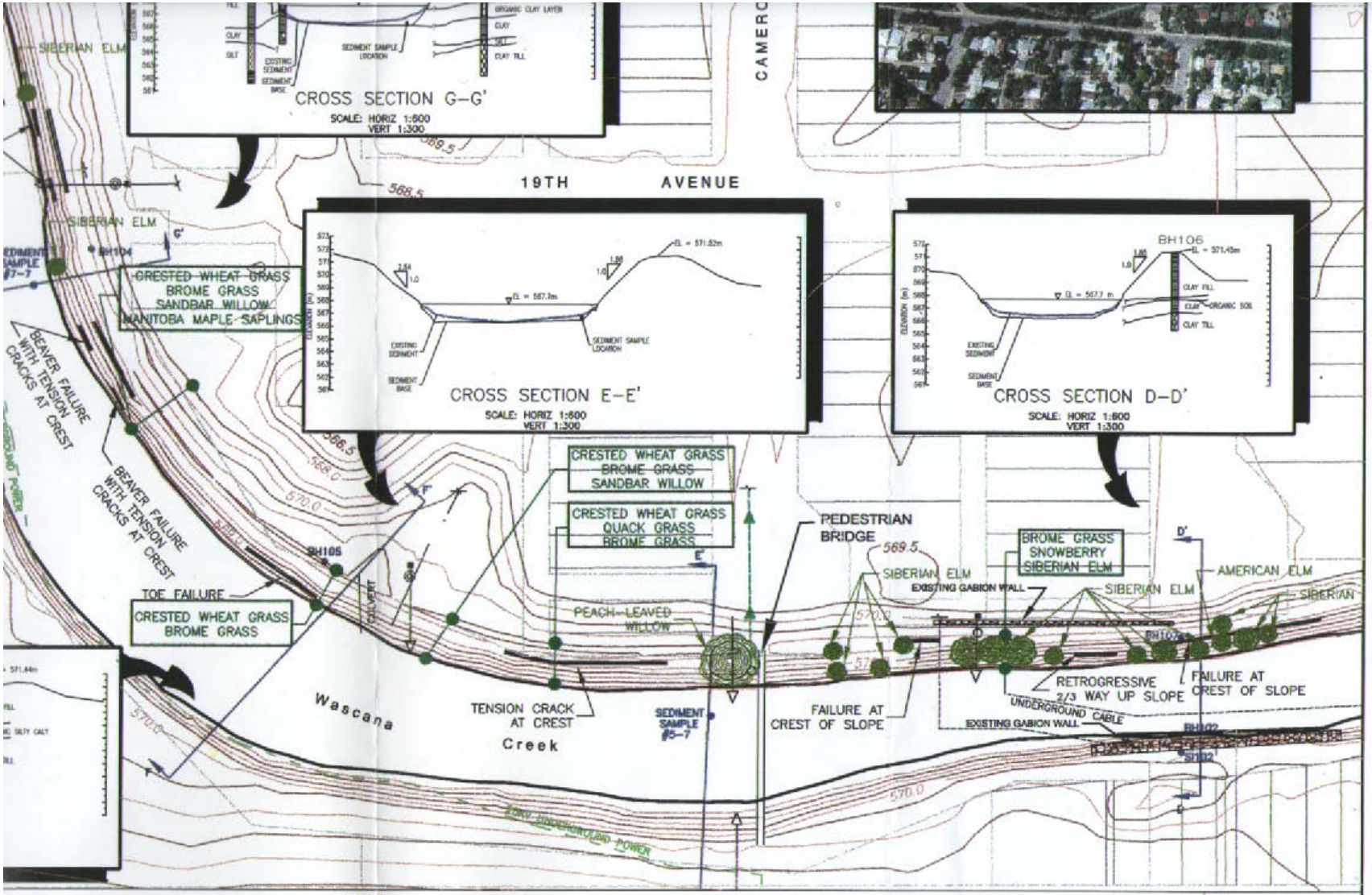
NOTES:

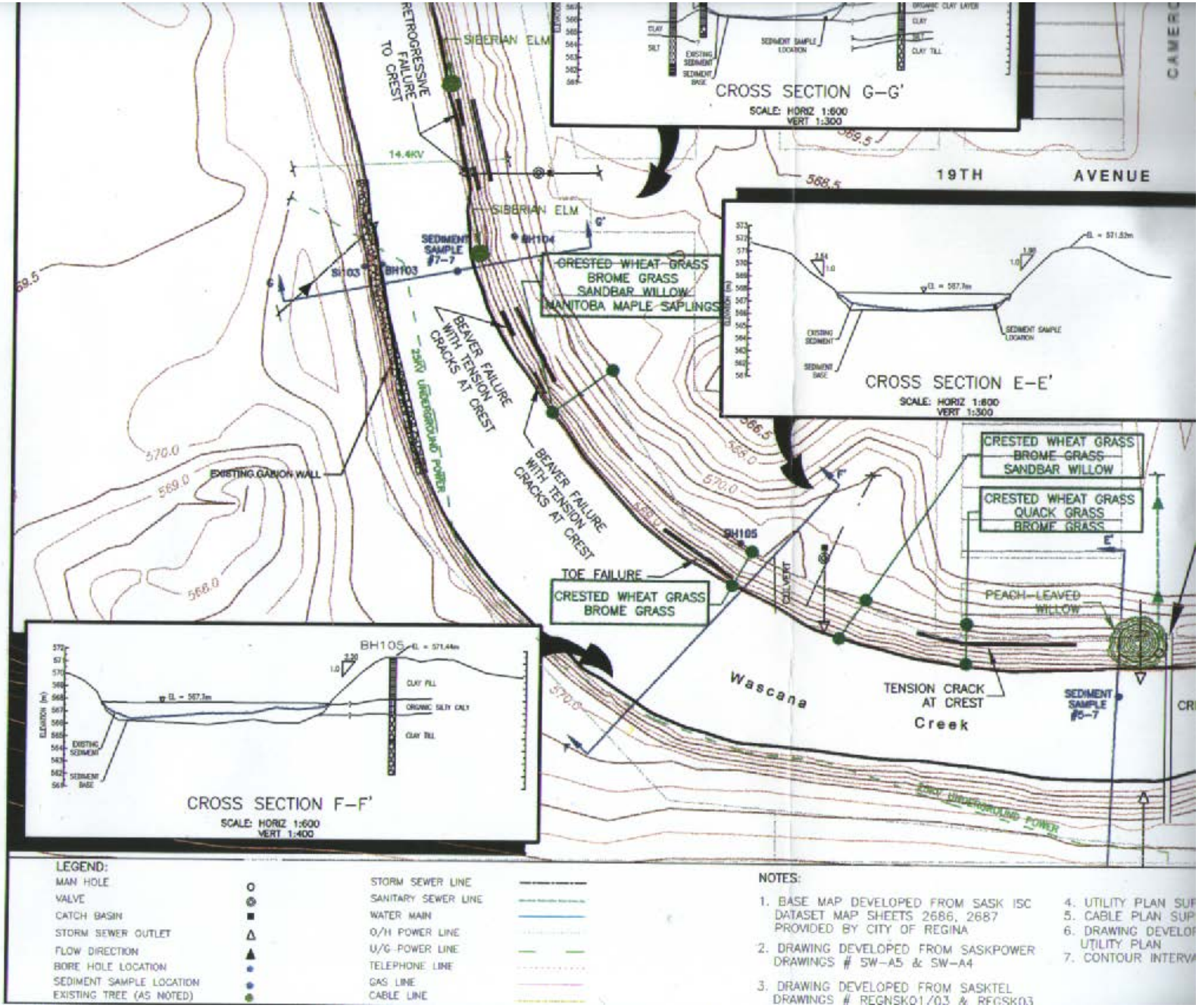
# The Russian Olive – Where It All Began

# Current Conditions




CROSS SECTION B–B'
SCALE: HORIZ 1:600
VERT 1:300
CROSS SECTION C–C'
SCALE: HORIZ 1:600
VERT 1:300
BH106
CLAY FILL
CLAY
ORGANIC SOIL
CLAY TILL
EXISTING SEDIMENT
SEDIMENT BASE
CRESTED WHEAT GRASS
BROME GRASS
CATTAIL/BUSHES
MANITOBA MAPLE
GREEN ASH SAPLINGS
CRESTED WHEAT GRASS
BROME GRASS
SWEET CLOVER
SANDBAR WILLOW
MANITOBA MAPLE
GREEN ASH SAPLINGS
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
MANITOBA MAPLE
GREEN ASH SAPLINGS
SIBERIAN ELM
MANITOBA MAPLE
TENSION CRACKS
AT CREST OF SLOPE
FAILURE NEAR
CREST
FAILURE NE
OF SLOPE
FIBER OPTIC
BEAVER FAILURE AT TOE
c/w TENSION CRACKS AT
CREST OF SLOPE
LARGE TENSION CRACKS
AT CREST OF SLOPE
ROTARY PARK
UNDERGROUND CABLE
LEGEND:
MAN HOLE
VALVE
CATCH BASIN
STORM SEWER OUTLET
FLOW DIRECTION
BORE HOLE LOCATION
SEDIMENT SAMPLE LOCATION
EXISTING TREE (AS NOTED)
STORM SEWER LINE
SANITARY SEWER LINE
WATER MAIN
O/H POWER LINE
U/G POWER LINE
TELEPHONE LINE
GAS LINE
CABLE LINE
NOTES:
1. BASE MAP DEVELOPED FROM SASK ISC DATASET MAP SHEETS 2686, 2687 PROVIDED BY CITY OF REGINA
2. DRAWING DEVELOPED FROM SASKPOWER DRAWINGS # SW-A5 & SW-A4
3. DRAWING DEVELOPED FROM SASKTEL DRAWINGS # REGNSK01/03 & REGSK03
4. UTILITY PLAN SU
5. CABLE PLAN SU
6. DRAWING DEVEL
UTILITY PLAN
7. CONTOUR INTER


CROSS SECTION G–G'
SCALE: HORIZ 1:500
VERT 1:300
19TH AVENUE
SIBERIAN ELM
BH104
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
MANITOBA MAPLE SAPLINGS
BEAVER FAILURE WITH TENSION CRACKS AT CREST
CROSS SECTION E–E'
SCALE: HORIZ 1:500
VERT 1:300
BH106
CROSS SECTION D–D'
SCALE: HORIZ 1:500
VERT 1:300
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
CRESTED WHEAT GRASS
QUACK GRASS
BROME GRASS
PEDESTRIAN BRIDGE
BROME GRASS
SNOWBERRY
SIBERIAN ELM
AMERICAN ELM
EXISTING GABION WALL
BH105
TOE FAILURE
CRESTED WHEAT GRASS
BROME GRASS
CULVERT
PEACH-LEAVED WILLOW
TENSION CRACK AT CREST
Wascana Creek
SEDIMENT SAMPLE #5-7
FAILURE AT CREST OF SLOPE
RETROGRESSIVE 2/3 WAY UP SLOPE
FAILURE AT CREST OF SLOPE
UNDERGROUND CABLE
BH102
NOTES:
1. BASE MAP DEVELOPED FROM SASK ISC DATASET MAP SHEETS 2886, 2687 PROVIDED BY CITY OF REGINA
2. DRAWING DEVELOPED FROM SASKPOWER DRAWINGS # SW-A5 & SW-A4
3. DRAWING DEVELOPED FROM SASKTEL
4. UTILITY PLAN SUPPLIED BY SASKENERGY
5. CABLE PLAN SUPPLIED BY CABLE REGINA
6. DRAWING DEVELOPED FROM CITY OF REGINA UTILITY PLAN
7. CONTOUR INTERVAL = .5m
Clifton Associates Ltd.
CITY OF REGINA
WASCANA CREEK RIVERSIDE REACH REHABILITATION PROJECT
BASELINE CONDITION 2 OF 3


CROSS SECTION G–G'
SCALE: HORIZ 1:600
VERT 1:300
CROSS SECTION E–E'
SCALE: HORIZ 1:600
VERT 1:300
CROSS SECTION F–F'
SCALE: HORIZ 1:600
VERT 1:400
19TH AVENUE
RETROGRESSIVE FAILURE TO CREST
SIBERIAN ELM
14.4KV
SEDIMENT SAMPLE #7–7
BH104
BH103
BH105
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
MANITOBA MAPLE SAPLINGS
BEAVER FAILURE WITH TENSION CRACKS AT CREST
25kV UNDERGROUND POWER
EXISTING GABION WALL
TOE FAILURE
CRESTED WHEAT GRASS
BROME GRASS
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
CRESTED WHEAT GRASS
QUACK GRASS
BROME GRASS
PEACH–LEAVED WILLOW
CULVERT
TENSION CRACK AT CREST
SEDIMENT SAMPLE #5–7
Wascana Creek
CLAY FILL
ORGANIC SILTY CLAY
CLAY TILL
EXISTING SEDIMENT
SEDIMENT BASE
LEGEND:
MAN HOLE
VALVE
CATCH BASIN
STORM SEWER OUTLET
FLOW DIRECTION
BORE HOLE LOCATION
SEDIMENT SAMPLE LOCATION
EXISTING TREE (AS NOTED)
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SANITARY SEWER LINE
WATER MAIN
O/H POWER LINE
U/G POWER LINE
TELEPHONE LINE
GAS LINE
CABLE LINE
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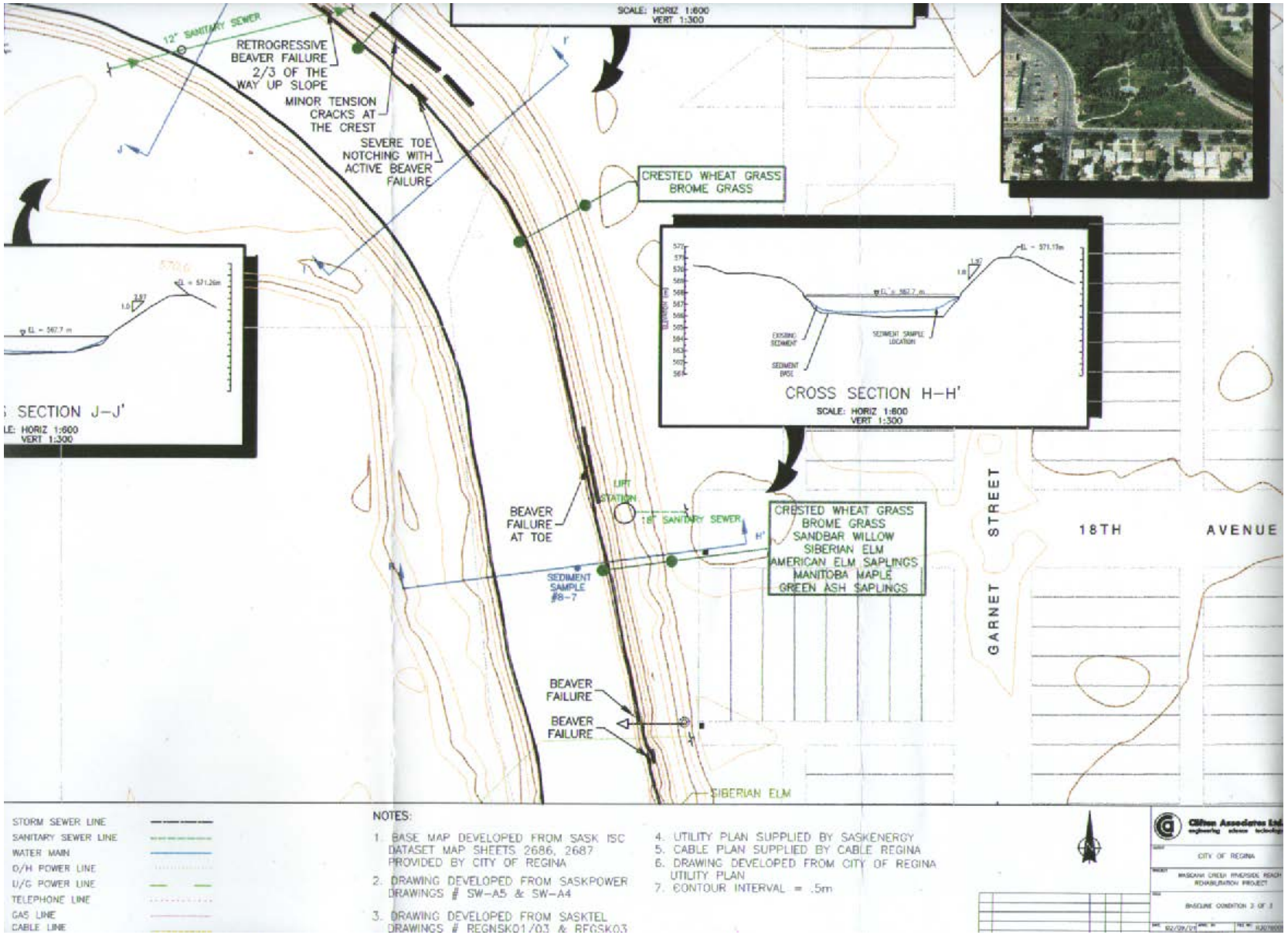
3. DRAWING DEVELOPED FROM SASKTEL DRAWINGS # REGNSK01/03 & REGSK03
4. UTILITY PLAN SUP
5. CABLE PLAN SUP
6. DRAWING DEVELOP UTILITY PLAN
7. CONTOUR INTERV


12" SANITARY SEWER
RETROGRESSIVE BEAVER FAILURE 2/3 OF THE WAY UP SLOPE
MINOR TENSION CRACKS AT THE CREST
SEVERE TOE NOTCHING WITH ACTIVE BEAVER FAILURE
SCALE: HORIZ 1:600 VERT 1:300
CRESTED WHEAT GRASS BROME GRASS
CROSS SECTION H-H'
SCALE: HORIZ 1:600 VERT 1:300
SECTION J-J'
SCALE: HORIZ 1:600 VERT 1:300
LIFT STATION
18" SANITARY SEWER
BEAVER FAILURE AT TOE
SEDIMENT SAMPLE #8-7
CRESTED WHEAT GRASS
BROME GRASS
SANDBAR WILLOW
SIBERIAN ELM
AMERICAN ELM SAPLINGS
MANITOBA MAPLE
GREEN ASH SAPLINGS
GARNET STREET
18TH AVENUE
BEAVER FAILURE
BEAVER FAILURE
SIBERIAN ELM
STORM SEWER LINE
SANITARY SEWER LINE
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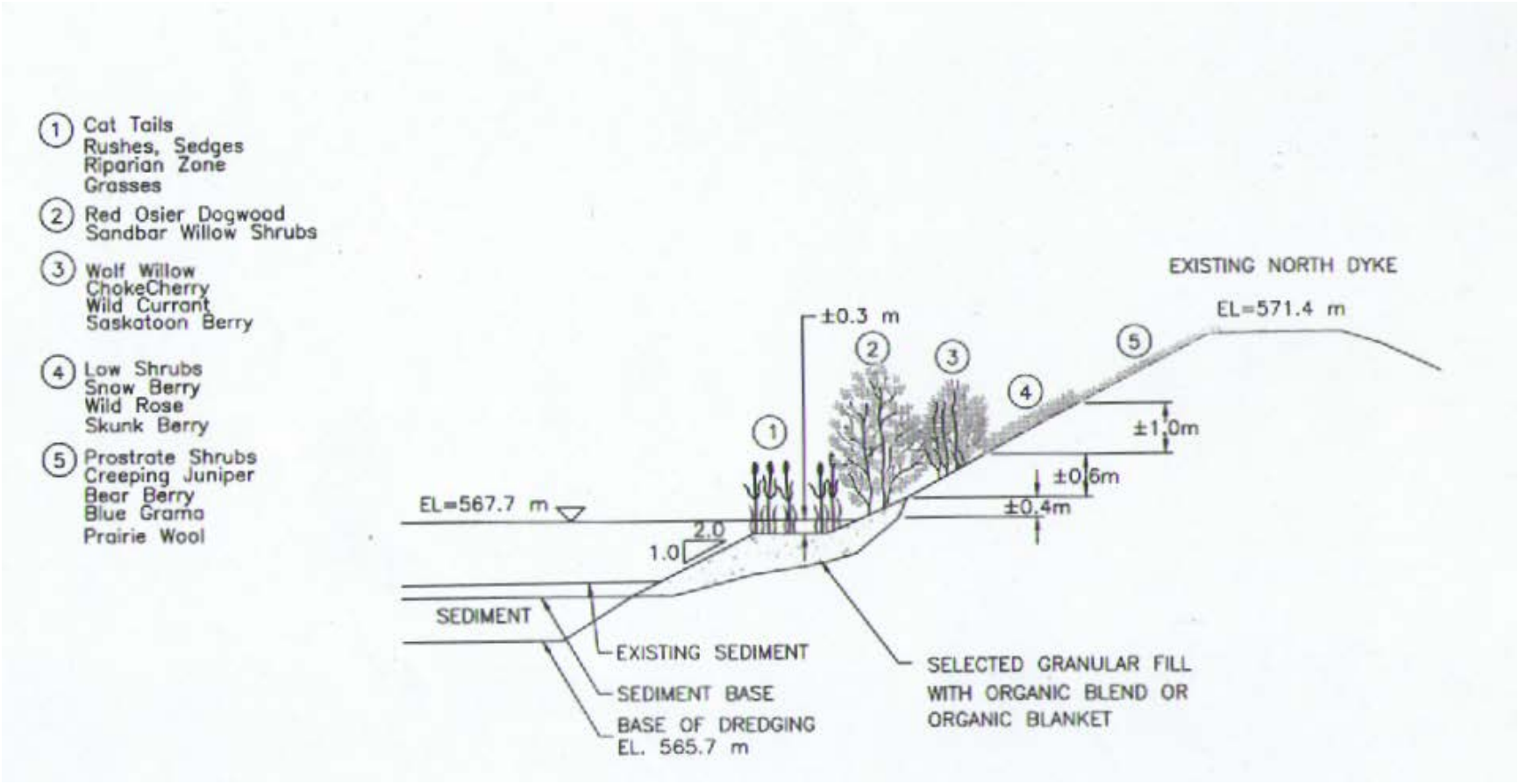
4. UTILITY PLAN SUPPLIED BY SASKENERGY
5. CABLE PLAN SUPPLIED BY CABLE REGINA
6. DRAWING DEVELOPED FROM CITY OF REGINA UTILITY PLAN
7. CONTOUR INTERVAL = .5m
CITY OF REGINA
WASCANA CREEK RIVERSIDE REACH REHABILITATION PROJECT
BASELINE CONDITION 3 OF 3

# Bioengineering Slope Treatment



# Pre-Design and Construction Timeline

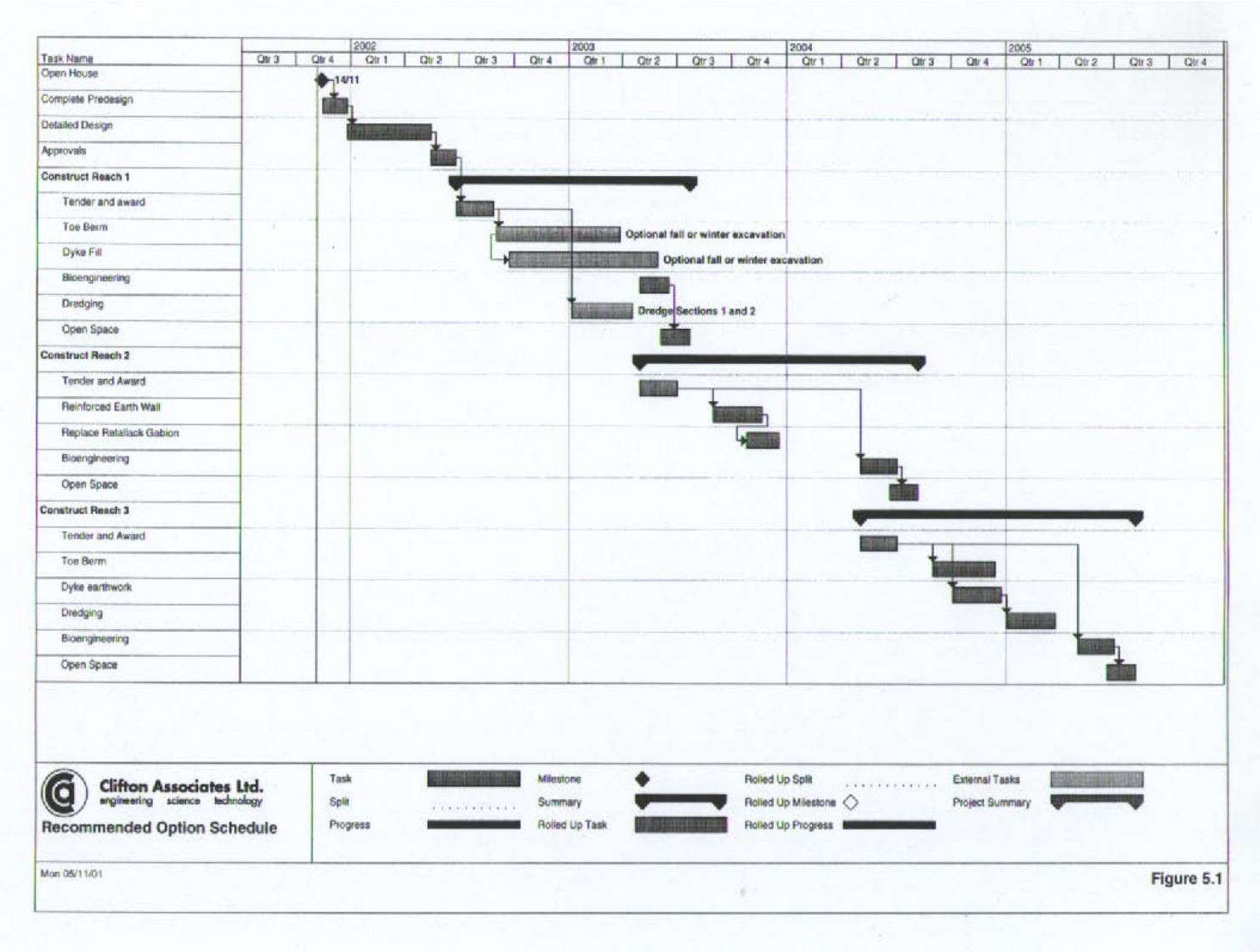



Figure 5.1

Plant
Species

Bullrush (*Schoenoplectus acutus* (Muhl ex Bigelow) A.&D. Love, formerly *Scirpus lacustris* L.)

Cattail (*Typha* latifolia L.)

Chokecherry (*Prunus* viginiana L.)

Prairie Crocus (*Anenome patens* L.)

Wild Currant (*Ribes americanum* Mill.)

Red-osier Dogwood (*Cornus* stolonifera Michx.)

Creeping Juniper (*Juniperus horizontalis* Moench.)

Kinnikinnick (*Arctostaphylos uva-ursi* L.)

Wild Rose (*Rosa* sp.)

Baltic Rush (*Juncus balticus* Willd.)

Saskatoon (*Amelanchier* alnifolia Nutt.)

Beaked Sedge (*Carex rostrata* Stokes)

Water Sedge (*Carex aquatulis* Wahlenb.)

Skunkberry (*Ribes glandulosum* Grauer)

Snowberry (*Symphoricarpos albus* L.)

Spike-rush (*Eleocharis palustris* (L.) R. & S.)

Willow (*Salix exigua* Nutt.)

Wolf Willow (*Elaeagnus commutate* Bernh.)

## Seed Mix

Blue Grama (*Bouteloua gracilis* (HBK) Lag.)

Needle & Thread (*Stipa comate* Trin. & Rupr.)

Purple Prairie Clover (*Dalea purpurea* Vent)

White Prairie Clover (*Petalostemon candidum* (Wild.) Michx.)

Northern Wheatgrass (*Elymus lanceolatus* (Scribner & J.G. Smith) Gould.)

Western Wheatgrass (*Pascopyrum smithii* P.A. Love)

Canada Wildrye (*Elymus Canadensis* L.)

# Acknowlegements


- City of Regina, the project Owner and their staff
- the initial consultant Marshall, Macklin & Monaghan
- the general contractor, Clifton Associates
- Wappel Construction Co. Ltd.
- Terramax Site Work Ltd.
- the many citizens who participated in the Wascana Preservation Association.

Special mention is made of Mr. James O'Kane, an active community member of the WPA who passed away suddenly during the project.

Questions ???