Stage 1 Archaeological Assessment Kirwin Avenue/Little John Lane Sanitary Sewers (Lots 14-15, Concession 1 North of Dundas Street, Geographical Toronto Township, County of Peel) City of Mississauga, Regional Municipality of Peel

Original Report

Prepared for:

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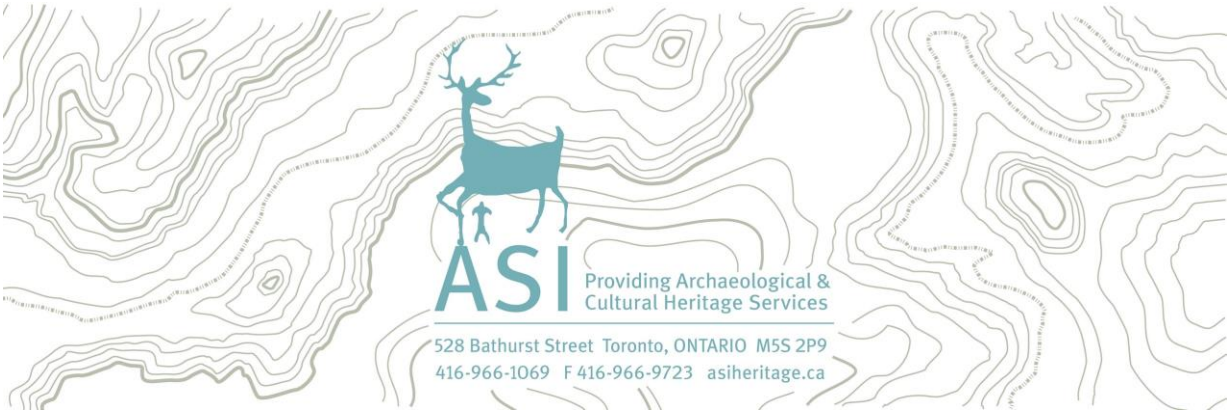

Executive Summary

Archaeological Services Inc. was contracted by Arcadis IBI Group on behalf of the Region of Peel to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Kirwin Avenue/Little John Lane (Cooksville) Detailed Design Municipal Class Environmental Assessment in the City of Mississauga. This project involves diverting flows upstream of the 300-millimetre sanitary sewer on Hurontario (at Kirwin Avenue) to a proposed 525-millimetre sanitary sewer along Kirwin Avenue and into the Cooksville Creek Trunk Sewer. This will include replacing the existing 250-millimetre sanitary sewer from Little John Lane and Kirwin Avenue that currently outlets to the Cooksville Creek with a new 250-millimetre sewer. Existing sanitary service connection is to be replaced from the property line and connected to the new sanitary sewer. The proposed 525-millimetre sanitary sewer crossing the Cooksville Creek will be a 30-metre trenchless crossing.

The Stage 1 Study Area includes two options. The Preferred Route option is located along Kirwin Avenue from east of Hurontario Street to approximately 40 metres south of Cooksville Creek, parts of Cooksville Creek trail west of the creek, and Little John Lane from Kirwin Avenue to John Street. The Not Preferred option is located along part of Jaguar Valley Drive to north of Dundas Street East, part of John C. Price Park, and from John C. Price Park to Dundas Street East.

The Stage 1 background study determined one previously registered archaeological site is located within one kilometre of the Study Area, which is not located within 50 metres. The property inspection determined that part of the Not Preferred option exhibits archaeological potential within John C. Price Park and will require archaeological assessment. The remainder of the Not Preferred option and the entirety of the Preferred option do not retain archaeological potential and do not require further archaeological assessment.

The following recommendations are made:

1) Part of the Not Preferred option, within John C. Price Park, exhibits archaeological potential. This land requires Stage 2 archaeological assessment by test pit survey at five metre intervals. Stage 2 is required prior to any proposed construction activities on these lands;

2) The entirety of the Preferred option and the remainder of the Not Preferred option do not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,

3) Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

Project Personnel

- **Senior Project Manager**: Lisa Merritt, MSc. (P094) Partner, Director, Environmental Assessment Division
- **Project Manager**: Danielle Bella, BA Hons., Archaeologist, Technical Writer, Environmental Assessment Division
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- **Project Administrator**: Catherine Kitchen, BA (R1364), Archaeologist, Project Administrator, Environmental Assessment Division
- **Field Director**: Eliza Brandy, MA (R1109), Associate Archaeologist, Project Manager, Environmental Assessment Division; Danielle Bella
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Table of Contents

List of Tables

List of Images

List of Figures

1.0 Project Context

Archaeological Services Inc. (ASI) was contracted by Arcadis IBI Group on behalf of the Region of Peel to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Kirwin Avenue/Little John Lane (Cooksville) Detailed Design Municipal Class Environmental Assessment in the City of Mississauga. This project involves diverting flows upstream of the 300-millimetre sanitary sewer on Hurontario (at Kirwin Avenue) to a proposed 525-millimetre sanitary sewer along Kirwin Avenue and into the Cooksville Creek Trunk Sewer. This will include replacing the existing 250-millimetre sanitary sewer from Little John Lane and Kirwin Avenue that currently outlets to the Cooksville Creek with a new 250-millimetre sewer. Existing sanitary service connection is to be replaced from the property line and connected to the new sanitary sewer. The proposed 525-millimetre sanitary sewer crossing the Cooksville Creek will be a 30-metre trenchless crossing.

The Stage 1 Study Area (Figure 1: outlined in red) includes two options. The Preferred Route option is located along Kirwin Avenue from east of Hurontario Street to approximately 40 metres south of Cooksville Creek, parts of Cooksville Creek trail west of the creek, and Little John Lane from Kirwin Avenue to John Street (Figure 10: area following the purple line). The Not Preferred option is located along part of Jaguar Valley Drive to north of Dundas Street East, part of John C. Price Park, and from John C. Price Park to Dundas Street East (Figure 10: area following the dashed black line).

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2023) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Citizenship and Multiculturalism (MCM 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act, RSO* (Environmental Assessment Act, R.S.O. c. E.18, 1990 as amended 2022) and regulations made under the Act, and are therefore subject to all associated

legislation. This project is being conducted in accordance with the *Municipal Class Environmental Assessment* process (Municipal Engineers Association, 2023).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment and property inspection was granted by Arcadis IBI Group on August 17, 2023.

1.1.1 Treaties

The Study Area is within Treaty 14, the Head of the Lake Purchase. On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown for lands along the north shore of Lake Ontario southwest of the Toronto Purchase to what is now Oakville (Mississauga of the New Credit First Nation, 2001; Mississaugas of the Credit First Nation, 2017).

1.2 Historical Context

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior,

evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Brown, 1995, p. 13; Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed.

By 1600 C.E., the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

1.2.2 Post-Contact Settlement

Historically, the Study Area is located in the Geographical Toronto Township, County of Peel in Lots 14-15, Concession 1 North of Dundas Street.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the Ontario Heritage Act or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Toronto Township and the City of Mississauga

The City of Mississauga is comprised of the historical communities of Clarkson, Cooksville, Dixie, Erindale, Lakeview, Lorne Park, Malton, Meadowvale Village, Port Credit and Streetsville, which formed part of the Township of Toronto.

The Township of Toronto was originally surveyed in 1806 and 1807 by Samuel Wilmot, the Deputy Surveyor of Upper Canada. The first settler in this Township was Colonel Thomas Ingersoll. Philip Cody was an early settler, who opened an inn Sydenham, later known as Fonthill and then as Dixie. The whole population of the Township in 1808 consisted of seven families, scattered along Dundas Street. The number of inhabitants gradually increased until the War of 1812 broke out, which gave considerable check to its progress. When the war was over, the Township's growth revived. The Credit River and numerous creeks provided for the establishment of saw and grist mills. Communities began to emerge, usually along the river or at crossroads along Dundas Street. Some of the villages that arose included: Clarkson, Cooksville, Dixie, Erindale, Malton, Meadowvale Village, Port Credit and Streetsville, as well as the hamlet of Lakeview and numerous other settlements which later disappeared. In 1821 the township's population was 803. By 1851 over 7,500 people lived in the township and more than 36,000 acres were being farmed to produce barley, wheat, oats, vegetables, and fruit. Small industries were located throughout the township, manufacturing products ranging from hosiery to ploughshares (Archaeological Services Inc., 2020).

During the second half of the nineteenth century, railways were built and the markets shifted. Water-powered industries in the rural areas could no longer compete with those in larger centres which were run by electricity. By 1901 the

township's population had dropped considerably to 4,690. The economy did not recover until the 1950s, when new industries moved into the township and spurred massive growth. When the Township of Toronto (excluding Port Credit and Streetsville) became the Town of Mississauga in 1968, it had a population of 107,000 and covered 70,598 acres. It grew very quickly, and the rural township transformed into an urban area, with over 1,200 industries locating in Mississauga by the 1970s. In 1974, the towns of Port Credit, Streetsville and Mississauga were amalgamated to become the City of Mississauga (Mika & Mika, 1981).

Village of Cooksville

The historic settlement of Cooksville is located at the intersection of Hurontario Street and Dundas Street East in the City of Mississauga. The first settler of Cooksville was Daniel Harris who arrived from the United States of America in 1800. The settlement was originally named Harrisville. The name was changed in 1836 to Cooksville after local entrepreneur Jacob Cook. Cooksville was a mail hub in the region and an important way-point on the journey between York and Niagara. Cooksville continued to prosper until 1852 when it was mostly razed by fire. The community rebounded in the late-nineteenth century with the expansion of winemaking, oil refining, and brick making industries, and by 1877 Cooksville had completely recovered. In 1873 Cooksville was chosen as the seat for Toronto Township (Heritage Mississauga, 2009).

1.2.3 Map Review

The 1859 *Tremaine's Map of the County of Peel* (Tremaine, 1859), 1877 *Illustrated Historical Atlas of the County of Peel* (Pope, 1877), and the 1909 Topographic Map Brampton Sheet (Department of Militia and Defence, 1909) were examined to determine the presence of historic features within the Study Area during the nineteenth and twentieth centuries (Figures 2-4).

The 1859 map (Figure 2) shows Hurontario Street and Dundas Street as historically surveyed roads. The village of Cooksville is located at the intersection of Hurontario Street and Dundas Street and within the Study Area along Dundas Street. Cooksville Creek intersects the east and south portions of the Study Area.

The 1877 map (Figure 3) shows the Credit Valley Railway over 100 metres from the Study Area. A post office is shown north of Dundas Street adjacent the Study Area.

On the 1909 map (Figure 4) one structure is shown adjacent to the north of the Study Area fronting Hurontario Street, and one structure is shown adjacent to the Study Area north of Dundas Street. A gravel pit is shown northwest of the Study Area and south of the railway.

1.2.4 Aerial and Orthoimagery Review

Historical aerial imagery from 1954, 1966, and 1975 (City of Mississauga, 1954, 1966, 1975) were reviewed.

The 1954 aerial imagery (Figure 5) shows a portion of Kirwin Avenue lined with residential houses had been built between the southeastern portion of the Study Area and Dundas Street. A structure is within the Study Area at Dundas Street. Cooksville Creek is shown to intersect the Study Area twice. The remainder of the Study Area is shown to be treed lands and open fields.

The 1966 aerial imagery (Figure 6) shows Jaguar Valley Drive and John Street had been constructed by this time. Large apartment buildings are shown to the west and east of Jaguar Valley Drive. Cooksville Creek is shown meandering through the Study Area. At this time, a small bridge located just west of the Study Area carries a driveway from Kirwin Avenue northwards to a house within the Study Area. A second narrow driveway winds from Dundas Street East within the Study Area, in the approximate location of Little John Lane. Several houses are shown back from the small roadway.

The 1975 aerial imagery (Figure 7) shows Kirwin Avenue to have been recently constructed between Hurontario Street and Dundas Street in its present-day alignment. The former portion of Kirwin Avenue shown in the 1954 and the 1966 aerials is shown to have been widened by 1975 to match the new right-of-way width. Cooksville Creek is shown to have been channelized and straightened. A new and wider bridge was built at its intersection with Kirwin Avenue. An apartment building complex is shown to be under construction

south of Kirwin Avenue and west of Cooksville Creek. Little John Lane is shown, with town houses to the northeast of Little John Lane and Kirwin Avenue, and apartment buildings to the northwest. The house shown in the 1954 and 1966 imagery at Hurontario Street has been demolished to allow for Kirwin Avenue to extend to Hurontario Street. Part of the driveway in the location of present-day Little John Lane, north of its intersection with Dundas Street, has been widened.

A review of available Google satellite imagery (2004-2022) shows the reconstruction of Kirwin Avenue bridge over Cooksville Creek in 2007 (Image 19). The remainder of the Study Area remained relatively unchanged.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MCM through "Ontario's Past Portal"; published and unpublished documentary sources; and the files of ASI.

1.3.1 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars

stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 B.P. (Karrow & Warner, 1990, fig. 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is located within the beaches of the South Slope physiographic region and sand plains of the Iroquois Plain physiographic region of southern Ontario (Chapman & Putnam, 1984).

The South Slope physiographic region (Chapman & Putnam, 1984, pp. 172–174) is the southern slope of the Oak Ridges Moraine. The South Slope meets the Moraine at heights of approximately 300 metres above sea level, and descends southward toward Lake Ontario, ending, in some areas, at elevations below 150 metres above sea level. Numerous streams descend the South Slope, having cut deep valleys in the till.

The Iroquois Plain is a lowland region bordering Lake Ontario. This region is characteristically flat and formed by lacustrine deposits laid down by the inundation of Lake Iroquois, a body of water that existed during the late

Pleistocene. This region extends from the Trent River, around the western part of Lake Ontario, to the Niagara River, spanning a distance of 300 kilometres (Chapman & Putnam, 1984). The old shorelines of Lake Iroquois include cliffs, bars, beaches and boulder pavements. The old sandbars in this region are good aquifers that supply water to farms and villages. The gravel bars are quarried for road and building material, while the clays of the old lake bed have been used for the manufacture of bricks (Chapman & Putnam, 1984).

Figure 8 depicts surficial geology for the Study Area. The surficial geology mapping (Ontario Geological Survey, 2010) demonstrates that the Study Area is underlain by littoral deposits, foreshore and basinal deposits, coarse-textured glaciolacustrine deposits of sand, gravel, minor silt and clay, and modern alluvial deposits of clay, silt, sand, gravel, organic remains.

Soils within the Study Area include Fox sand, a grey-brown podzolic with good drainage and, Bottom Land, an alluvial with variable drainage (Experimental Farms Service, 1953). Soil drainage is shown on Figure 9.

Cooksville Creek intersects the Study Area at Kirwin Avenue. The Cooksville Creek watershed drains an area of approximately 33.9 square kilometres. Cooksville Creek originates in the City of Mississauga near Hurontario Street and Britannia Road and flows south to meet its confluence with Lake Ontario in the Lake Iroquois Plain physiographic region west of Cawthra Road. Approximately 92% of Cooksville Creek has been channelized (Aquafor Beech Ltd., 2012).

1.3.2 Previously Registered Archaeological Sites

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MCM. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometres east to west, and approximately 18.5 kilometres north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *AjGv.*

According to the Ontario Archaeological Sites Database, one previously registered archaeological site is located within one kilometre of the Study Area, which is not located within 50 metres (MCM 2023). A summary of the sites is provided below in Table 1.

Table 1: Registered Sites within One Kilometre of the Study Area

Borden number	Site Name	Temporal/ Cultural Affiliation	Site type	Researcher
AjGv-92	Cooksville	Pre-contact Indigenous; Post-contact	Findspot; Demolition debris	AMICK Consultants Limited 2019

1.3.3 Previous Archaeological Assessments

ASI determined no previous archaeological assessments detail fieldwork within 50 metres of the Study Area.

2.0 Property Inspection

2.1 Field Methods

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on

topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the acting Field Director Danielle Bella, under the supervision of Eliza Brandy (R1109), on September 8, 2023, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a systematic visual inspection from publicly accessible lands/public right-of-ways only and did not include excavation or collection of archaeological resources. Fieldwork was conducted when weather conditions were deemed clear with good visibility (partly cloudy and 20 degrees Celsius), per S & G Section 1.2., Standard 2. Field photography is presented in Section 7.2 (Image 1 to Image 13), and field observations are overlaid onto the existing conditions of the Study Area in Section 8.0 (Figure 10).

2.2 Current Land Use and Field Conditions

The Stage 1 Study Area is located along Kirwin Avenue from east of Hurontario Street to approximately 40 metres south of Cooksville Creek, parts of Little John Lane from Kirwin Avenue to John Street and from John C. Price Park to Dundas Street East, part of Jaguar Valley Drive to north of Dundas Street East, and parts of Cooksville Creek trail west of the creek and part of John C. Price Park.

Kirwin Avenue is a two-lane road, with one lane per direction of traffic. At its intersection with Jaguar Valley Drive and Little John Lane, Kirwin Avenue has a left turn lane. Kirwin Avenue has bike lanes for each direction of traffic, and a lane for parking on the northwestern side. There are sidewalks on both sides of the road. Little John Lane is a two-lane road with one lane per direction of traffic, and sidewalks on both sides of the road. There is a lane for street parking on the northeastern side of the road. The northern portion of Little John Lane is bound by an apartment complex to the west and townhouses to the east. The southern portion of Little John Lane is bound by John C. Price Park and commercial properties. Between west of Jaguar Valley Drive and Lynwood Lane,

the majority of Kirwin Avenue is bound by apartment buildings. There are town houses northeast of Kirwin Avenue at Little John Lane, and tennis courts off Lynwood Lane. A road bridge carries Kirwin Avenue over a straightened and naturalized portion of Cooksville Creek. The 2005 As-Builts (see Appendix A) show an existing gas line from Kirwin Avenue, which connects to the apartment at 3100 Kirwin Avenue along the north side of the creek. South of the creek, Kirwin Avenue is bound by residential houses. Jaguar Valley Drive is bound by apartment buildings. The portion of John C. Price Park within the Study Area includes a channelized portion of Cooksville Creek and a grassy field with trees. The area is bound by a commercial property to the southeast.

3.0 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (AjGv-92);
- Water sources: primary, secondary, or past water source (Cooksville Creek);
- Well-drained soils (Fox sand);
- Proximity to early settlements (Cooksville);
- Early historic transportation routes (Hurontario Street, Dundas Street East)

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Municipal Heritage Register was consulted and no property within the Study Area is Listed or Designated under the *Ontario Heritage Act*.

The Study Area includes a Preferred option (Figure 10: area following the purple line) and a Not Preferred option (Figure 10: area following the dashed black line).

The property inspection determined that part of the Not Preferred option, within John C. Price Park, exhibits archaeological potential. This area will require Stage 2 archaeological assessment prior to any construction activities or other proposed impacts. According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide (Image 17; Figure 10: areas highlighted in green).

Part of the Not Preferred option and the entirety of the Preferred option has been subjected to deep soil disturbance events due to the construction and widening of Kirwin Avenue in the mid-late twentieth century and the development of town houses and apartment buildings, installation of utilities, the channelization of Cooksville Creek, the reconstruction of Kirwin Street bridge over Cooksville Creek, and the demolition of residential houses along Hurontario Street replaced with Kirwin Avenue and commercial buildings and parking lots. According to the S & G Section 1.3.2 these areas do not retain archaeological potential (Image 1 to Image 16, Image 18; Figure 10: areas highlighted in yellow) and do not require further survey.

3.1 Conclusions

The Stage 1 background study determined one previously registered archaeological site is located within one kilometre of the Study Area, which is not located within 50 metres. The property inspection determined that part of the Not Preferred option exhibits archaeological potential within John C. Price Park and will require archaeological assessment (Figure 10: areas highlighted in green). The entirety of the Preferred option and the remainder of the Not Preferred option do not retain archaeological potential and do not require further archaeological assessment.

4.0 Recommendations

The following recommendations are made:

1) Part of the Not Preferred option, within John C. Price Park, exhibits archaeological potential. This land requires Stage 2 archaeological assessment by test pit survey at five metre intervals (Figure 10: areas highlighted in green). Stage 2 is required prior to any proposed construction activities on these lands;

2) The entirety of the Preferred option and the remainder of the Not Preferred option do not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,

3) Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the MCM should be immediately notified.

The above recommendations are subject to MCM approval and it is an offence to alter any archaeological site without MCM concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MCM approval has been received.

5.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the MCM as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 2005, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the MCM a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) *of the Ontario Heritage Act*.

- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Public and Business Services Delivery is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the *Ontario Heritage Act*

and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

6.0 Bibliography and Sources

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7.0 Images

7.1 Field Photography

Image 1: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

Image 2: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

Image 3: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

Image 4: Preferred Route: Little John Lane rights-of-way are disturbed, no potential.

Image 5: Preferred Route: Little John Lane rights-of-way are disturbed, no potential.

Image 6: Preferred Route: Little John Lane rights-of-way are disturbed, no potential.

Image 7: Preferred Route: Kirwin Avenue at Little John Lane is disturbed, no potential.

Image 8: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

Image 9: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

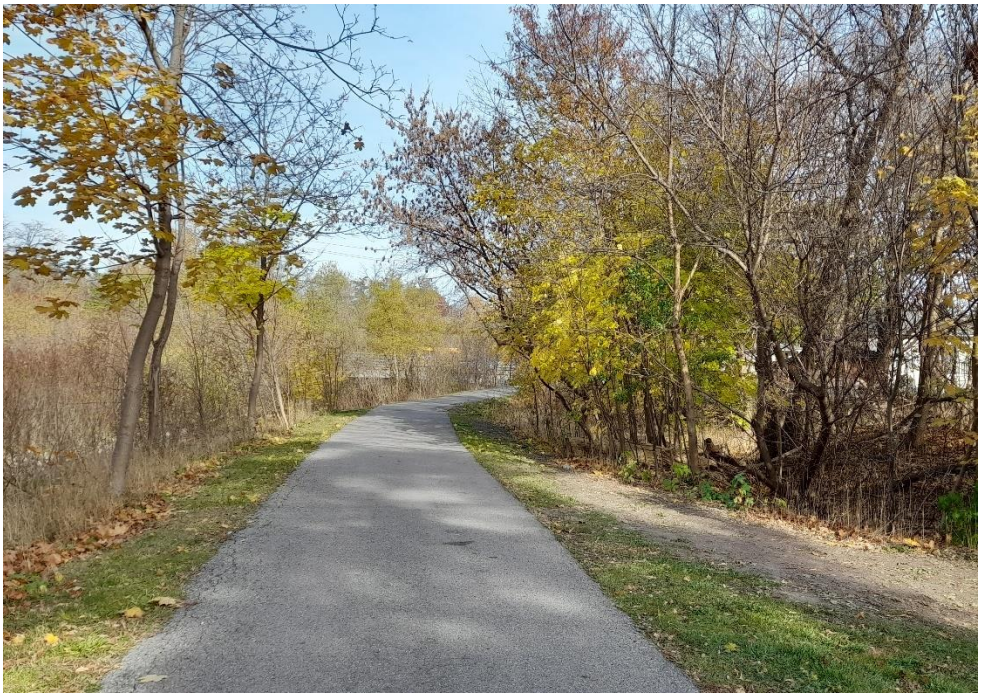


Image 10: Preferred Route: Land south of disturbed Cooksville Creek trail requires Stage 2 Survey.

Image 11: Preferred Route: Cooksville Creek at Kirwin Avenue is disturbed, no potential.

Image 12: Preferred Route: Cooksville Creek at Kirwin Avenue is disturbed, no potential.

Image 13: Preferred Route: Kirwin Avenue rights-of-way are disturbed, no potential.

Image 14: Not Preferred Route: Jaguar Valley Drive rights-of-way are disturbed, no potential.

Image 15: Not Preferred Route: Jaguar Valley Drive rights-of-way are disturbed, no potential.

Image 16: Not Preferred Route: Channelized Cooksville Creek is disturbed, no potential.

Image 17: Not Preferred Route: John C. Price Park requires Stage 2 Test Pit Survey.

Image 18: Not Preferred Route: Little John Lane rights-of-way are disturbed, no potential.

7.2 Historical Imagery

Image 19: Reconstruction of Kirwin Avenue Bridge over Cooksville Creek in 2007 (Google Earth Pro, 2023).

8.0 Maps

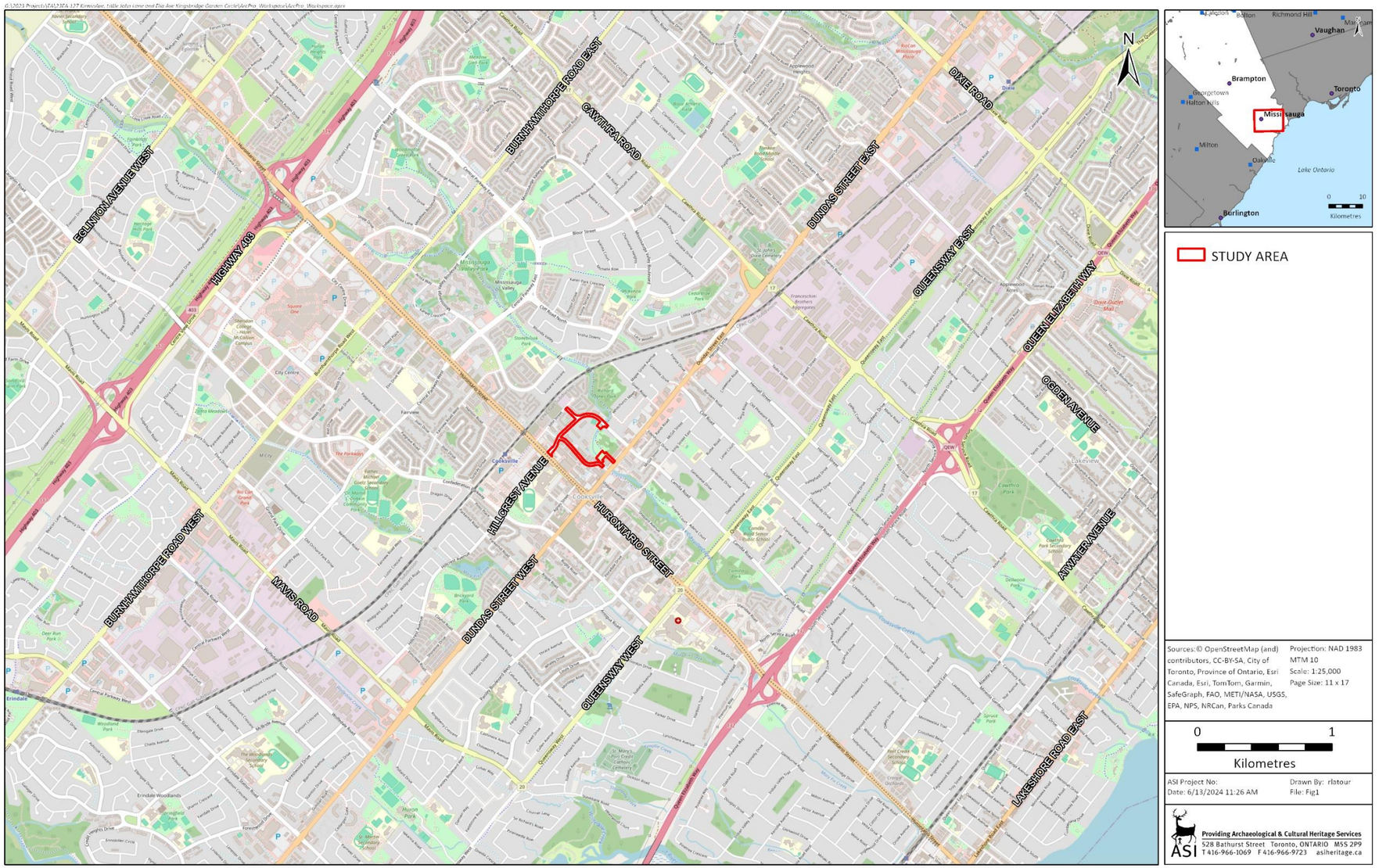


Figure 1: Kirwin Avenue Study Area.

Figure 2: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1859 Tremaine's Map of the County of Peel.

Figure 3: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Peel.

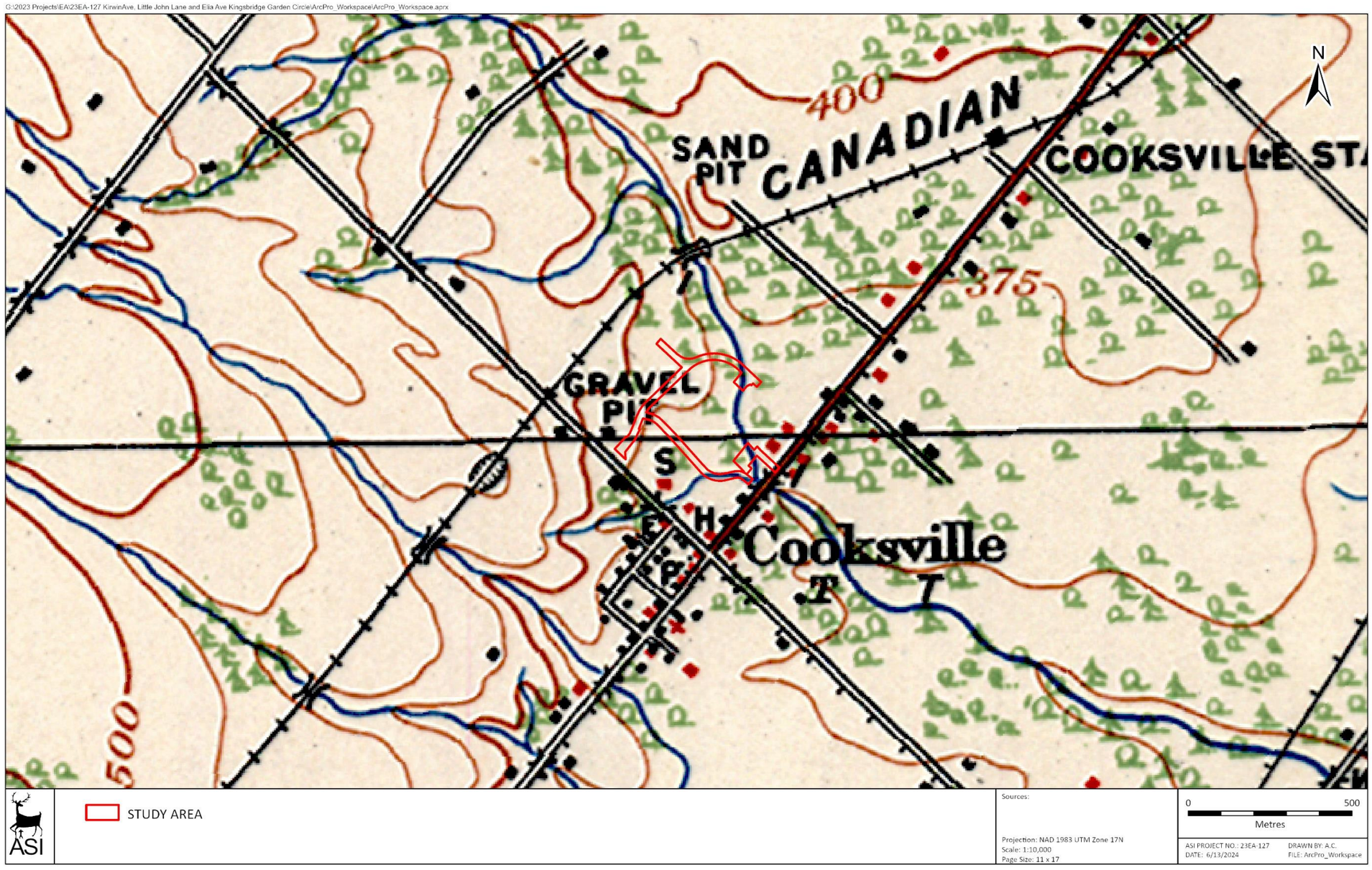


Figure 4: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1909 Topographic Map Brampton Sheet.

Figure 5: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1954 Aerial Photography.

Figure 6: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1966 Aerial Photography.

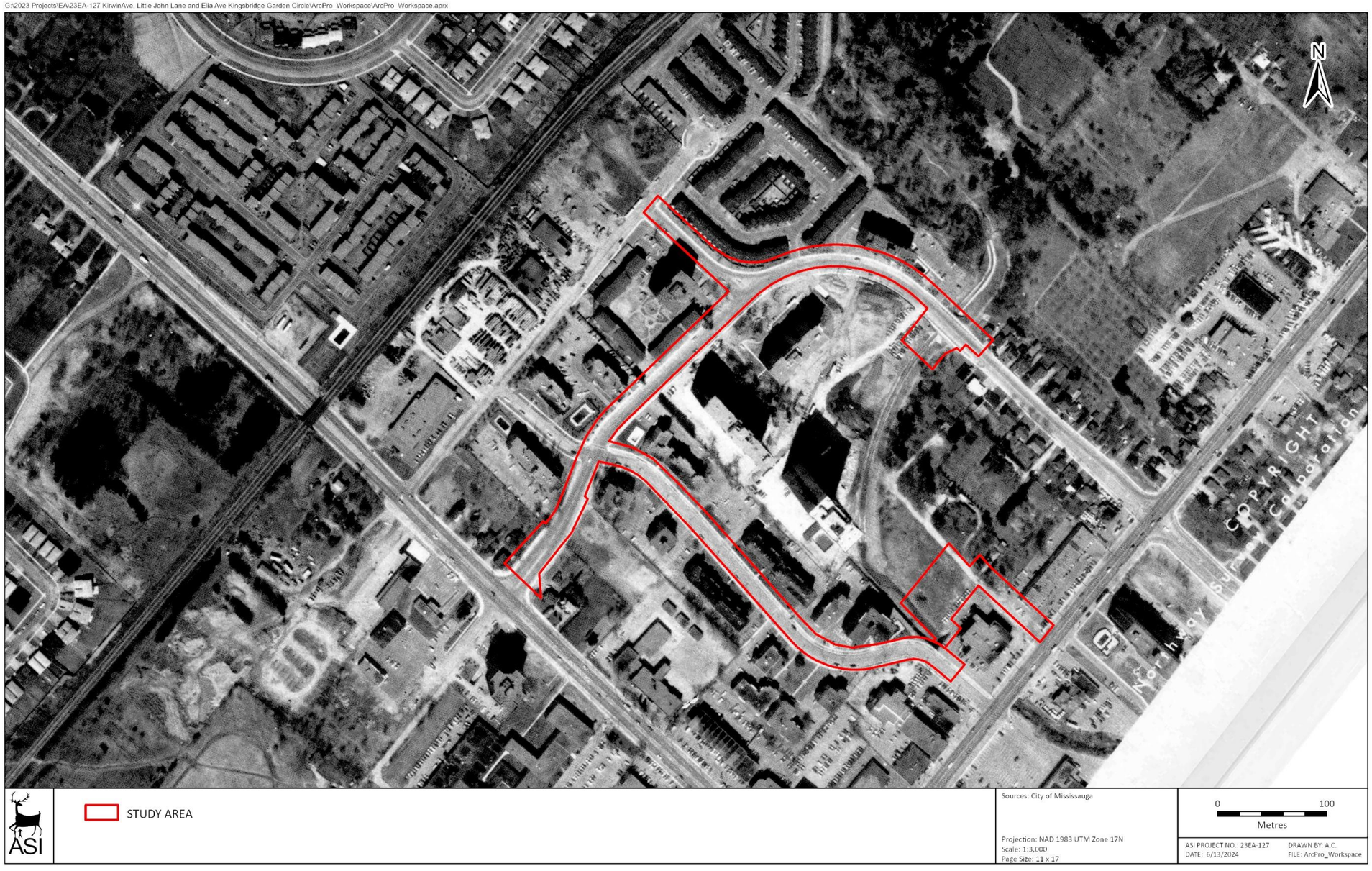


Figure 7: Kirwin Avenue Study Area (Approximate Location) Overlaid on the 1975 Aerial Photography.

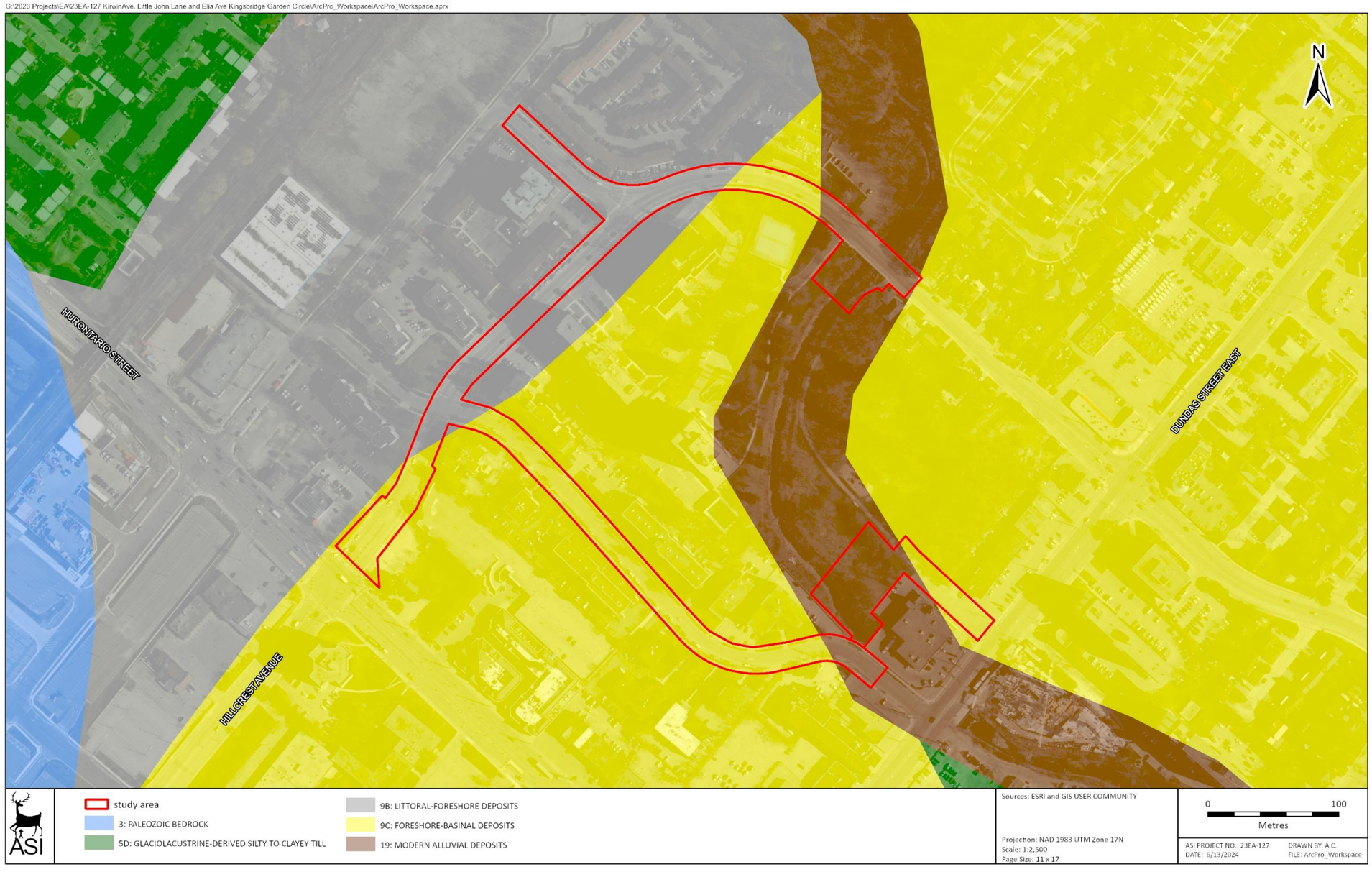


Figure 8: Kirwin Avenue Study Area – Surficial Geology.

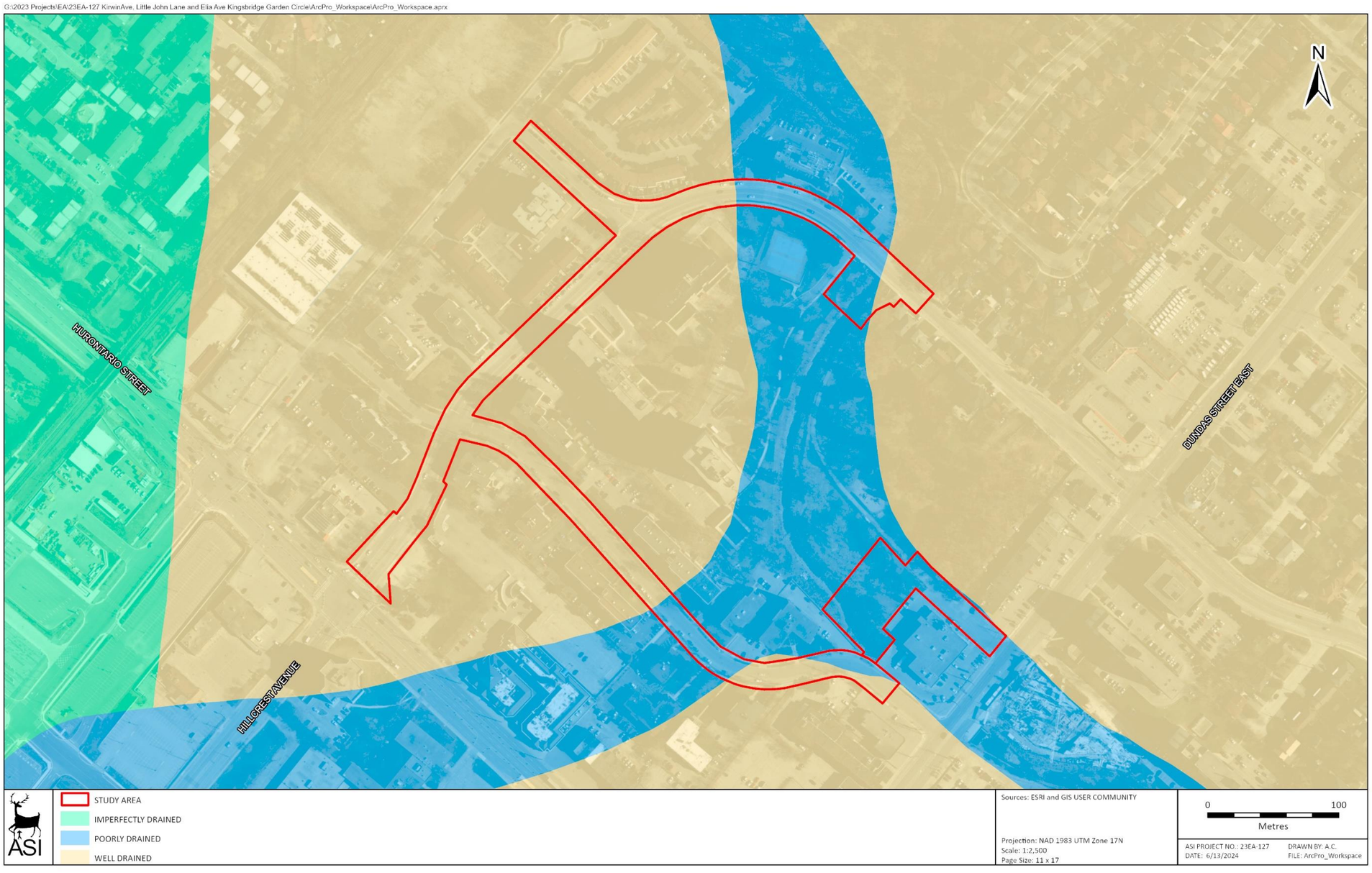
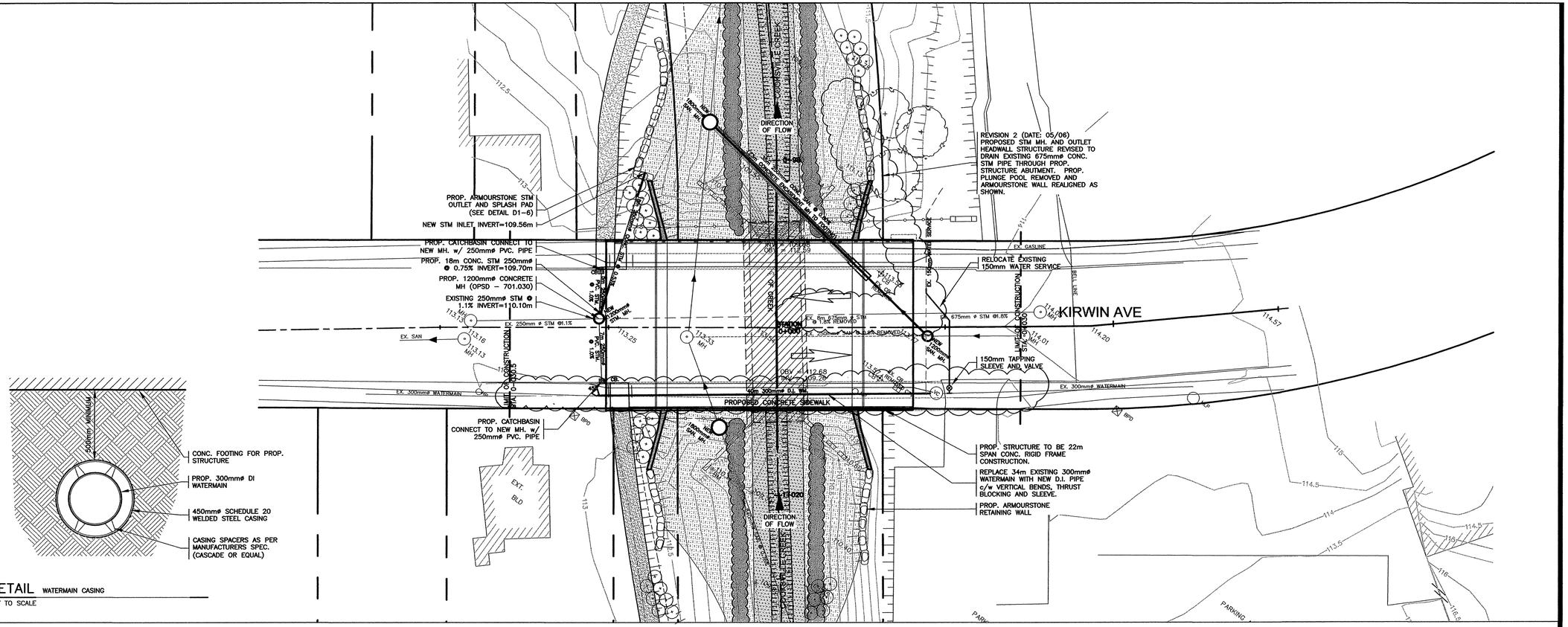


Figure 9: Kirwin Avenue Study Area – Soil Drainage.

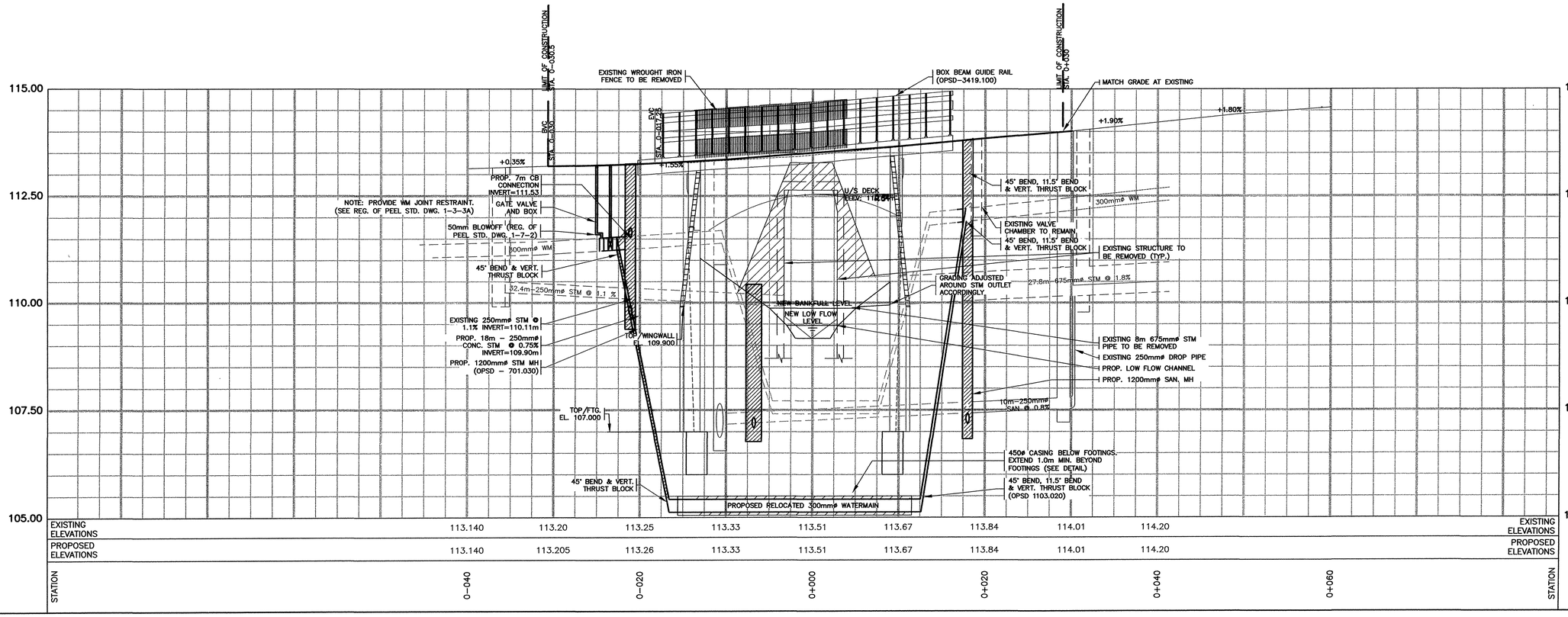
Figure 10: Kirwin Avenue Study Area – Results of Stage 1.

Appendix A: 2005 As-Builts



DETAIL WATERMAIN CASING

NOT TO SCALE



NOTE:

IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES, SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

WITH THE SOLE EXCEPTION OF THE BENCHMARK(S) SPECIFICALLY DESCRIBED FOR THIS PROJECT, NO ELEVATION INDICATED OR ASSUMED HEREON IS TO BE USED AS A REFERENCE ELEVATION FOR ANY PURPOSE.

LEGEND

- ℄ AXIS
- MH — MANHOLE LOCATION
- 0+000 — STATION IN METRES
- 113.58 — EXISTING SPOT ELEVATION
- CB — CATCH BASIN LOCATION

19/07/06 ISSUE FOR CONSTRUCTION

- REVISE WM LOCATION AND ADD CASING SPACERS AND USE EXISTING VALVE.
- REMOVED STM. HEADWALL FOR 675mmø PIPE.
- DRAIN EXIST. 675mmø STM PIPE THROUGH NEW ABUTMENT
- REVISE SAN. LAYOUT REMOVING ONE MH.
- MOVE STRUCTURE 1m SOUTH ON KIRWIN AVE.
- MOVED STM 1m ON SOUTH SIDE OF NEW STRUCTURE TO OUTSIDE OF APPROACH SLAB.
- ADJUST RAILING ON NEW STRUCTURE TO ACCOMMODATE PATHWAY.

NO.	DATE	DESCRIPTION	APP'D.
4	07/06		

REVISIONS

LICENSED PROFESSIONAL ENGINEER D. C. ELLIS 17/07/06 PROVINCE OF ONTARIO

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TSH engineers architects planners
300 Water Street
Whitby, Ontario
L1N 9J2
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FAX: 905-668-0221
E-mail tsh@tsh.ca
www.tsh.ca
Totten Sims Hubicki Associates (1997) Limited

COOKSVILLE CREEK KIRWIN AVENUE STRUCTURE REPLACEMENT

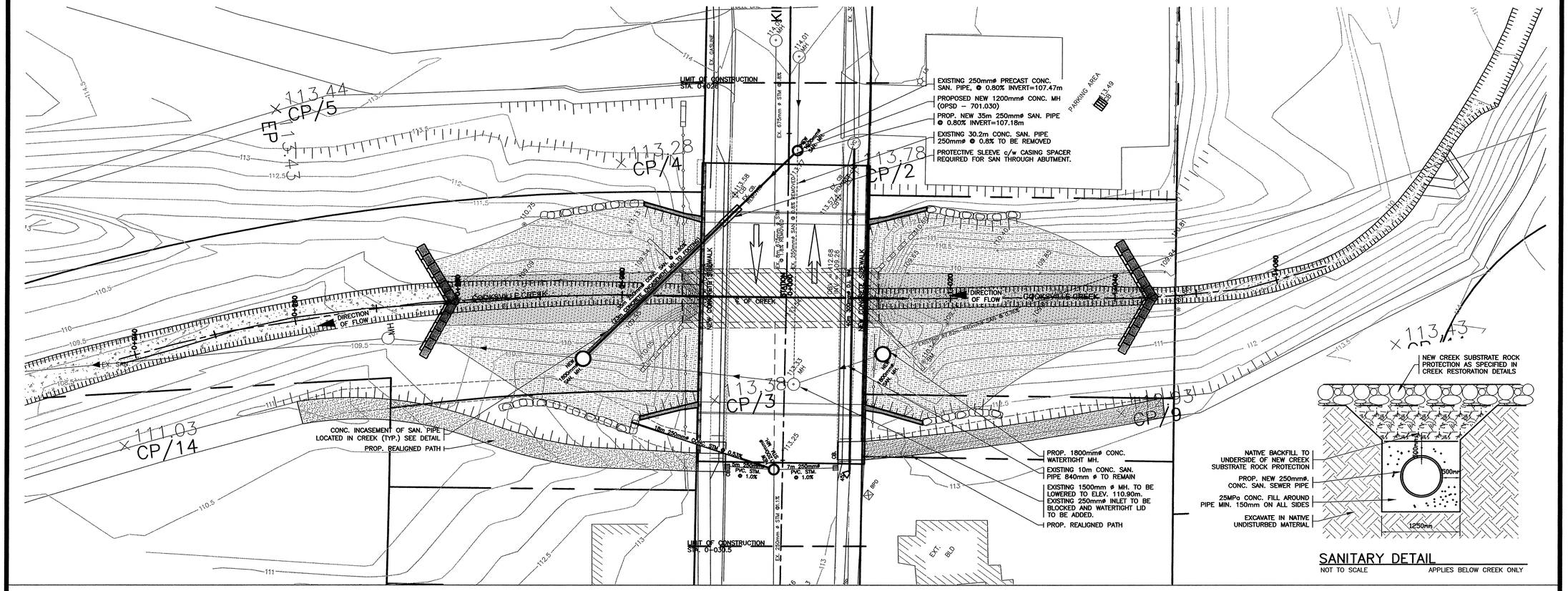
CONTRACT NO. 17 111 04132

CREEK RESTORATION
WATERMAIN RELOCATION
PLAN AND PROFILE

DRAWN BY	KV	DATE	OCTOBER, 2005
DESIGNED BY	WW	SCALE	1 : 250 1 : 50
CHK'D./APP'D.	WW	PROJ. No.	54-22227

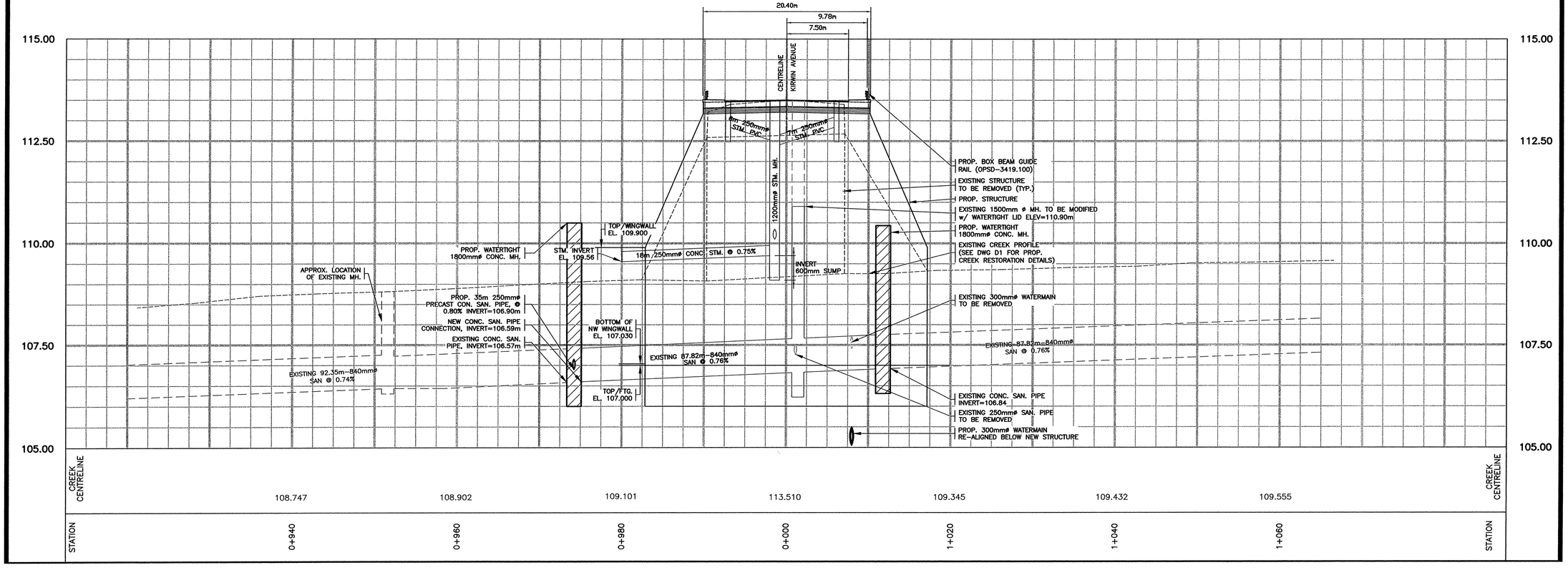
DRAWING NUMBER

C45049 PP1



SANITARY DETAIL

NOT TO SCALE — APPLIES BELOW CREEK ONLY



NOTE:

IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES, SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

WITH THE SOLE EXCEPTION OF THE BENCHMARK(S) SPECIFICALLY DESCRIBED FOR THIS PROJECT, NO ELEVATION INDICATED OR ASSUMED HEREON IS TO BE USED AS A REFERENCE ELEVATION FOR ANY PURPOSE.

LEGEND

- CENTERLINE AXIS
- MH — MANHOLE LOCATION
- 0+000 — STATION IN METRES
- 113.58 — EXISTING SPOT ELEVATION
- CB — CATCH BASIN LOCATION

19/07/06 ISSUE FOR CONSTRUCTION

4 07/06 – REVISE WM LOCATION AND ADD CASING SPACERS AND USE EXISTING VALVE.
– REMOVED STM. HEADWALL FOR 675mmø PIPE.
– DRAIN EXIST. 675mmø STM PIPE THROUGH NEW ABUTMENT
– REVISE SAN. LAYOUT REMOVING ONE MH.
– MOVE STRUCTURE 1m SOUTH ON KIRWIN AVE.
– MOVED STM 1m ON SOUTH SIDE OF NEW STRUCTURE TO OUTSIDE OF APPROACH SLAB.
– ADJUST RAILING ON NEW STRUCTURE TO ACCOMMODATE PATHWAY.

NO. DATE DESCRIPTION APP'D.

REVISIONS

LICENSED PROFESSIONAL ENGINEER — D. C. ELLIS — 17/07/06 — PROVINCE OF ONTARIO

MISSISSAUGA Transportation and Works

TSH engineers architects planners
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www.tsh.ca

COOKSVILLE CREEK KIRWIN AVENUE STRUCTURE REPLACEMENT

CONTRACT NO. 17 111 04132

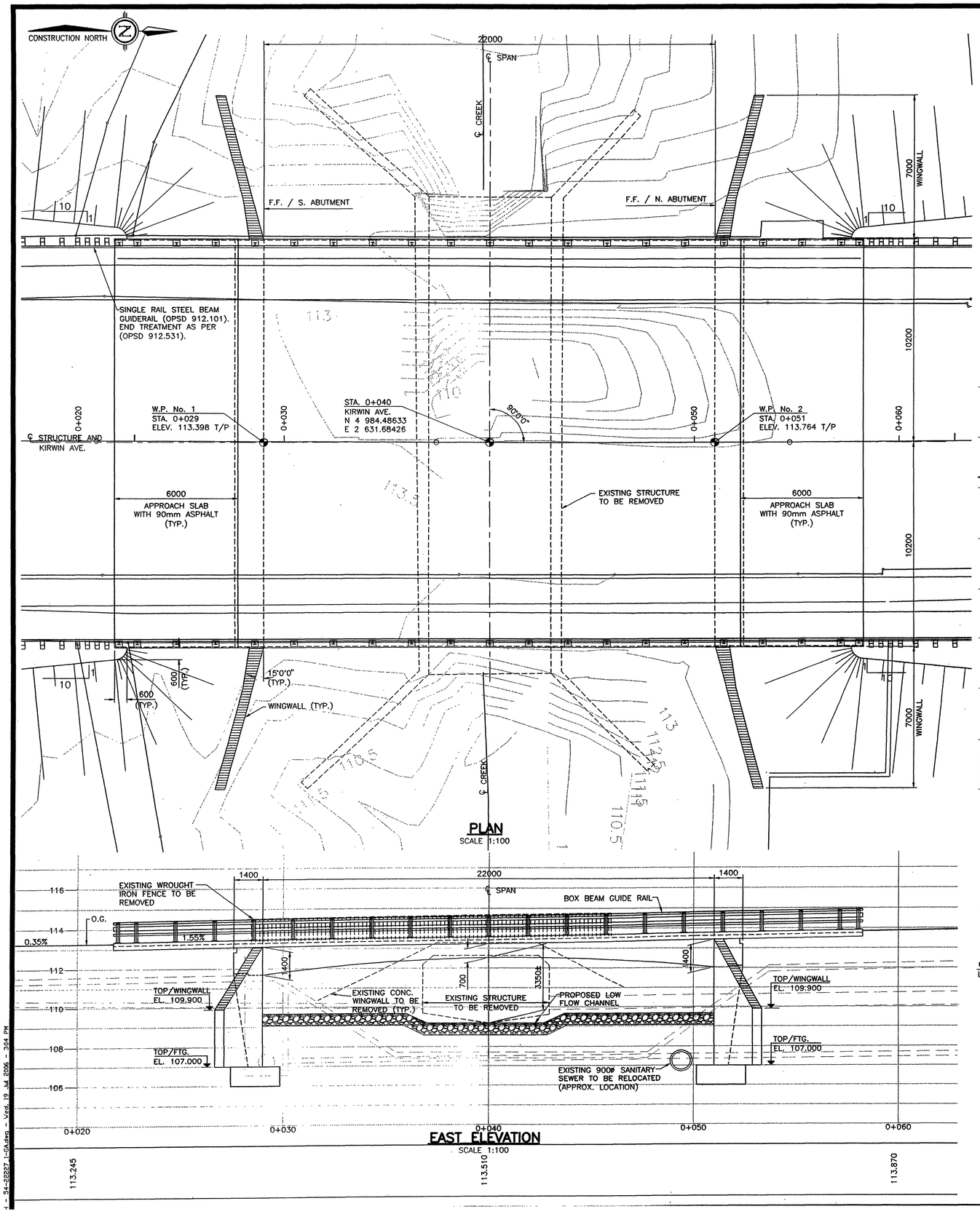
CREEK RESTORATION UTILITIES RELOCATION PLAN AND PROFILE

DRAWN BY KV DATE OCTOBER, 2005
DESIGNED BY WW SCALE 1 : 250 / 1 : 50
CHK'D./APP'D. WW PROJ. No. 54–22227

DRAWING NUMBER

PP2

C45050



PLAN
SCALE 1:100

EAST ELEVATION
SCALE 1:100

NOTES TO CONTRACTOR

- CONTRACTOR TO VERIFY THE BENCHMARK DATUM AND ALL RELEVANT STRUCTURE DIMENSIONS AND ELEVATIONS OF EXISTING WORKS ON SITE, AND ADJUST PROPOSED DIMENSIONS & ELEVATIONS AS REQUIRED TO MATCH EXISTING STRUCTURE, AS APPROVED BY THE ENGINEER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES, SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWING, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

LIST OF ABBREVIATIONS

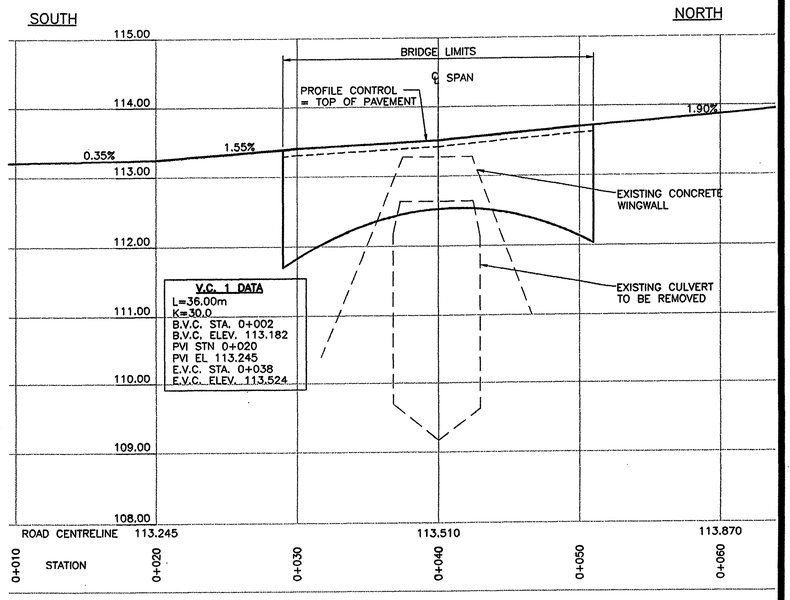
W.P.	WORKING POINT
T/P	TOP OF PAVEMENT
N.T.S.	NOT TO SCALE
F.F.	FRONT FACE
B.F.	BACK FACE

APPLICABLE STANDARD DRAWINGS

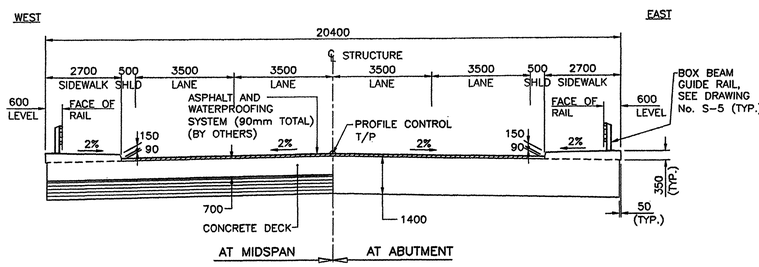
OPSD 3501.00	MINIMUM GRANULAR BACKFILL –REQUIREMENTS ABUTMENT
OPSD–3906.02	BRIDGE DECK WATERPROOFING
OPSD–3906.03	WATERPROOFING DETAILS
OPSD–4010.00	GUIDERAIL AND CHANNEL ANCHORAGES.
OPSD–4601.00	LOCATION OF SITE NUMBER AND DATE.
OPSD–4670.00	TYPICAL JOINT DETAILS

LIST OF DRAWINGS

1. GENERAL ARRANGEMENT
2. FOOTING DETAILS
3. FRAME DETAILS
4. WINGWALLS
5. GUIDERAIL DETAILS
6. 6000mm APPROACH SLAB



℄ PROFILE – KIRWIN AVE.
SCALE N.T.S.



TYPICAL SECTION
SCALE 1:100

GENERAL NOTES

CLASS OF CONCRETE

- FOOTINGS 30 MPa
- REMAINDER UNLESS OTHERWISE NOTED 30 MPa

CLEAR COVER TO REINFORCING STEEL

- FOOTINGS 100 ±25mm
- DECK TOP 70 ±20mm; BOTTOM 50 ±10mm
- REMAINDER UNLESS OTHERWISE NOTED 70 ±20mm

REINFORCING STEEL

- REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.
- BARS WITH PREFIX 'C' DENOTE COATED BARS.
- UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS 'B'.
- BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12–1 AND SS12–2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

- NO BACKFILL SHALL BE PLACED UNTIL DECK CONCRETE HAS REACHED 75% OF ITS SPECIFIED STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 0.5m.

NO.	DATE	DESCRIPTION	APP'D.
3			
2			
1	19/07/06	ISSUE FOR CONSTRUCTION	I.E.

REVISIONS

LICENSED PROFESSIONAL ENGINEER D. LeBLANC PROVINCE OF ONTARIO 21/9/06

LICENSED PROFESSIONAL ENGINEER I. EI-KHATIB PROVINCE OF ONTARIO 21/9/06

MISSISSAUGA Community Services

TSH engineers architects planners
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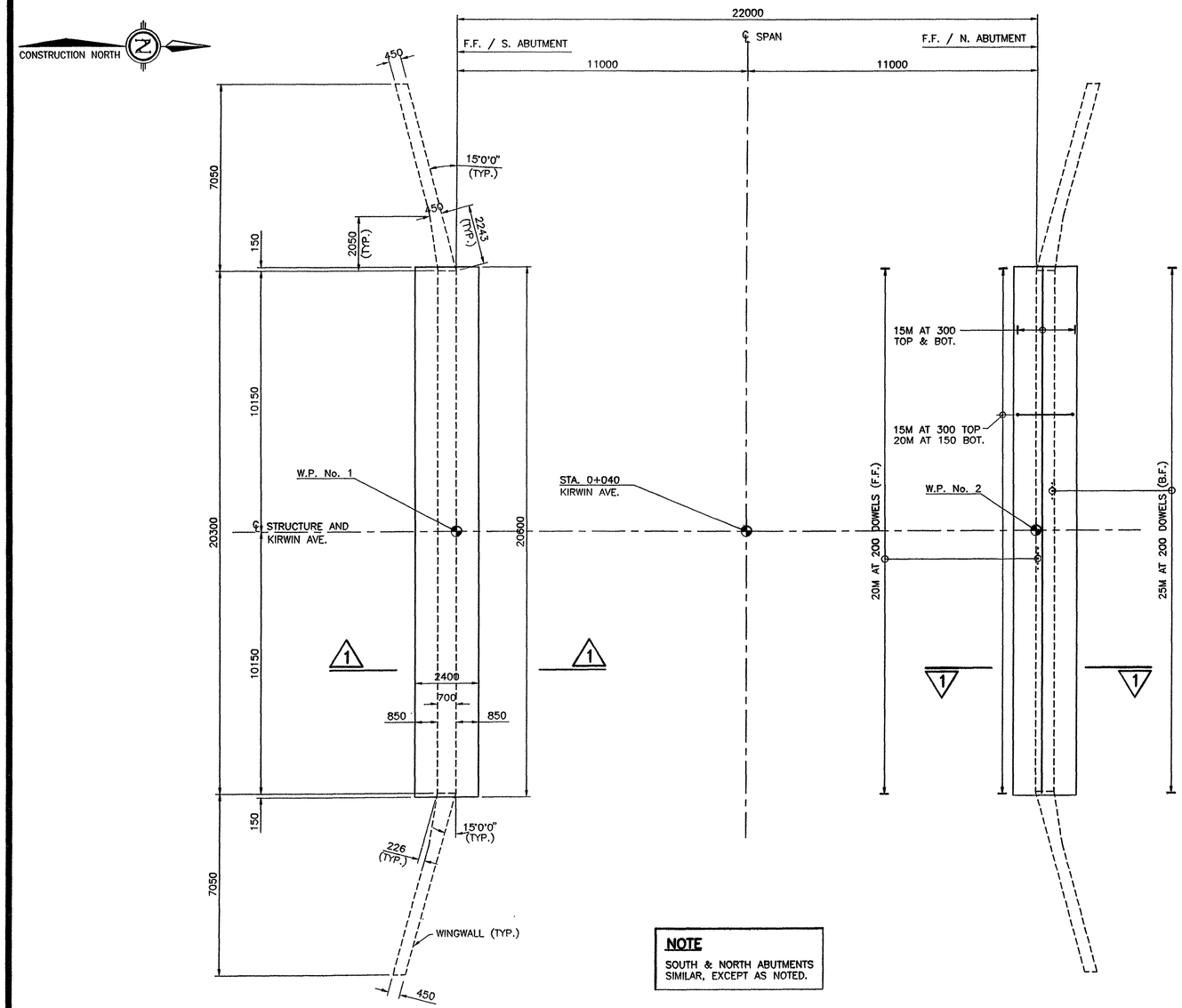
FAX: 905-668-0221
E-mail tsh@tsh.ca
www.tsh.ca
Totten Sims Hubicki Associates (1997) Limited

COOKSVILLE CREEK

GENERAL ARRANGEMENT

DRAWN BY YB	DATE JUNE, 2005
DESIGNED BY IE	SCALE AS NOTED
CHK'D./APP'D. DL	PROJ. No. 54-22227
PARK NUMBER	DRAWING NUMBER
C45051	1



LOCATION OF WORKING POINTS			
WP	COORDINATES		
	STATION	NORTHING	EASTING
1	0+029.000	4 978. 02895	2 622.77907
2	0+051.000	4 990. 94370	2 640.58944

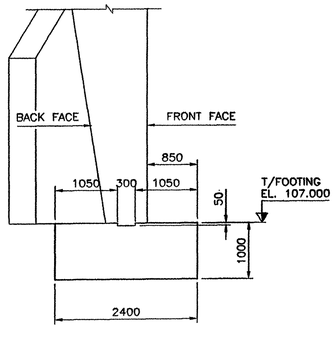
NOTE

SOUTH & NORTH ABUTMENTS SIMILAR, EXCEPT AS NOTED.

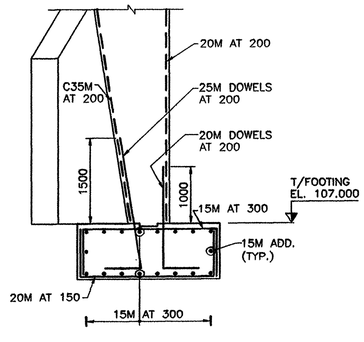
DIMENSIONS

PLAN
SCALE 1:100

REINFORCEMENT



DIMENSIONS



REINFORCEMENT

SECTION
1
SCALE 1:50

CONC. FOOTING NOTES:

- FOR GENERAL NOTES, MATERIAL & CONSTRUCTION SPECIFICATIONS, SEE DWG. No. 1.
- THIS DRAWING TO BE READ IN CONJUCTION WITH DWG. Nos. 4, 5 & 6.

FOUNDATION NOTES :

BEARING CAPACITY OF SPREAD FOOTING DESIGN (AS PER GEOTECHNICAL INVESTIGATION REPORT by NAYLOR ENGINEERING AND SUPPLEMENTARY LETTER DATED AUG. 31, 2005).

SLS = 400 KPa
ULS = 600 KPa

LIST OF ABBREVIATIONS

W.P.	WORKING POINT
T/P	TOP OF PAVEMENT
N.T.S.	NOT TO SCALE
F.F.	FRONT FACE

APPLICABLE STANDARD DRAWINGS

OPSD 3922.000 SUPPORTS FOR BOTTOM REINFORCING STEEL

NO.	DATE	DESCRIPTION	APP'D.
REVISIONS			
3			
2			
1	19/07/06	ISSUE FOR CONSTRUCTION	I.E.

D. LeBLANC 2/19/06 — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

I. El-KHATIB 2/19/06 — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

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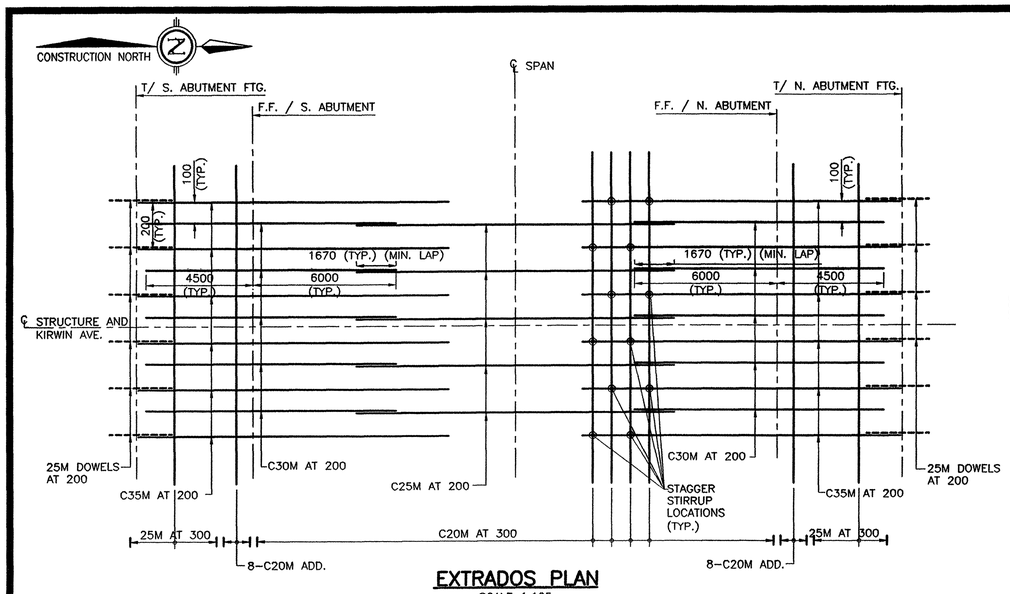
COOKSVILLE CREEK

FOOTING DETAILS

DRAWN BY	YB	DATE	SEPT., 2005
DESIGNED BY	IE	SCALE	AS NOTED
CHK'D./APP'D.	DL	PROJ. No.	54-22227

PARK NUMBER C45052 — DRAWING NUMBER 2

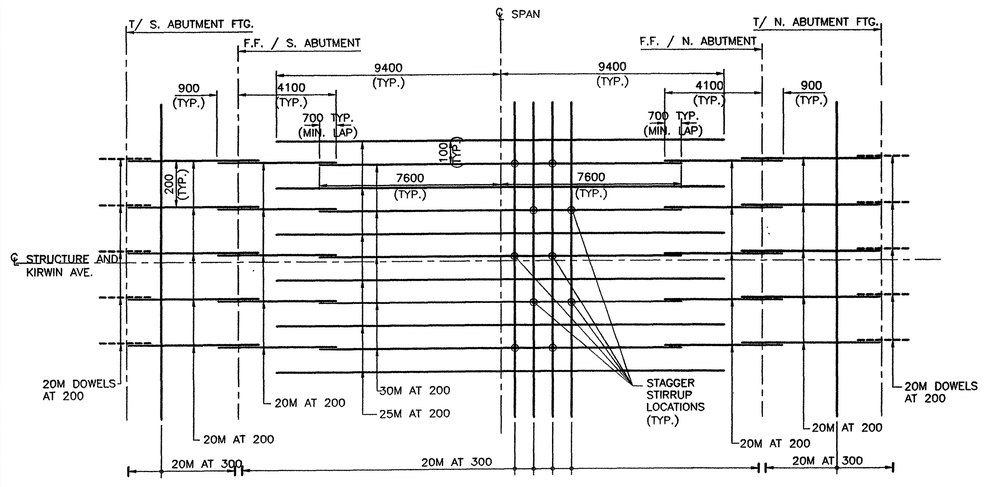


EXTRADOS PLAN

SCALE 1:125

NOTE:

1. REBAR SPACING IS NOT TO SCALE.
2. REBAR TO BE INSTALLED IN SINGLE TOP LAYER.

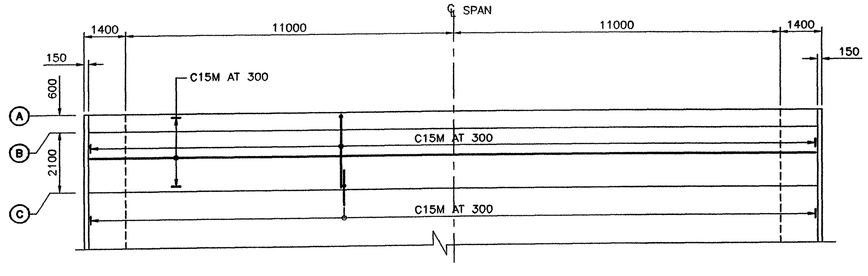


INTRADOS PLAN

SCALE 1:125

NOTE:

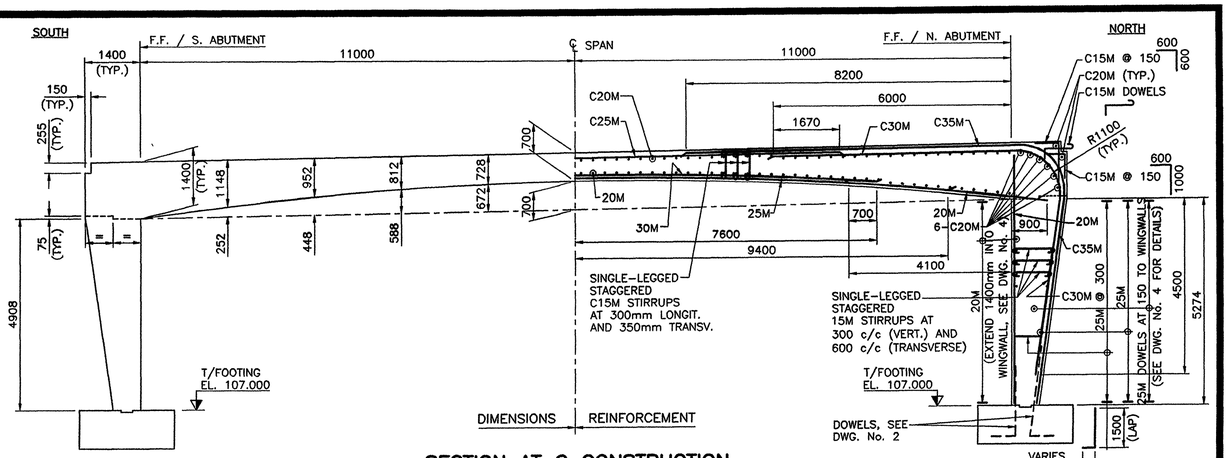
1. REBAR SPACING IS NOT TO SCALE.
2. REBAR TO BE INSTALLED IN SINGLE BOTTOM LAYER.



PART PLAN SHOWING SIDEWALK REINFORCING

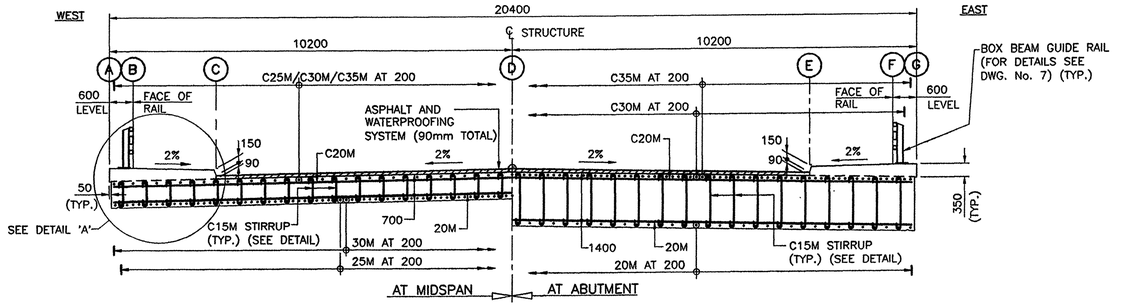
SCALE 1:100

NOTE: EAST SIDE SIDEWALK REINFORCING SIMILAR



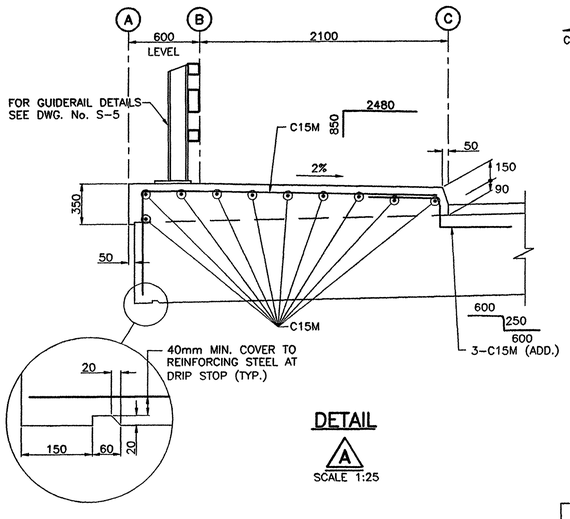
SECTION AT ℄ CONSTRUCTION

SCALE 1:75



TYPICAL DECK SECTION

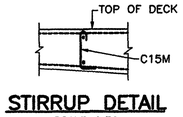
SCALE 1:75



DETAIL

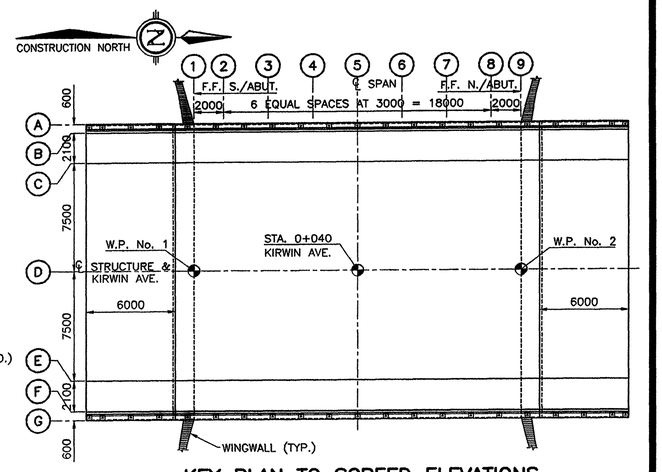
A

SCALE 1:25



STIRRUP DETAIL

SCALE 1:50



KEY PLAN TO SCREED ELEVATIONS

SCALE 1:200

SCREED ELEVATIONS

No.	1	2	3	4	5	6	7	8	9
A	113.439	113.469	113.515	113.561	113.609	113.665	113.719	113.771	113.805
B	113.439	113.469	113.515	113.561	113.609	113.665	113.719	113.771	113.805
C	113.158	113.188	113.234	113.280	113.328	113.384	113.438	113.490	113.524
D	113.308	113.338	113.384	113.430	113.478	113.534	113.588	113.640	113.674
E	113.158	113.188	113.234	113.280	113.328	113.384	113.438	113.490	113.524
F	113.439	113.469	113.515	113.561	113.609	113.665	113.719	113.771	113.805
G	113.439	113.469	113.515	113.561	113.609	113.665	113.719	113.771	113.805

NOTE:

1. SCREED ELEVATIONS INCLUDE ALLOWANCE FOR ROADWAY PROFILE, DEFLECTIONS DUE TO THE WEIGHT OF DECK AND SUPERIMPOSED DEAD LOAD.
2. SCREED ELEVATIONS ARE GIVEN TO TOP OF CONCRETE.

NOTES:

- FOR GENERAL NOTES, MATERIAL & CONSTRUCTION SPECIFICATIONS, SEE DWG. No. 1.
- THIS DRAWING TO BE READ IN CONJUCTION WITH DWG. Nos. 4, 5 & 6.

LIST OF ABBREVIATIONS

W.P.	WORKING POINT
T/P	TOP OF PAVEMENT
N.T.S.	NOT TO SCALE
F.F.	FRONT FACE
B.F.	BACK FACE
T/S	TOP OF SOUTH
T/N	TOP OF NORTH

APPLICABLE STANDARD DRAWINGS

OPSD 3922.000 SUPPORTS FOR BOTTOM REINFORCING STEEL

NO.	DATE	DESCRIPTION	APP'D.
3			
2			
1	19/07/06	ISSUE FOR CONSTRUCTION	I.E.

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D. LeBLANC
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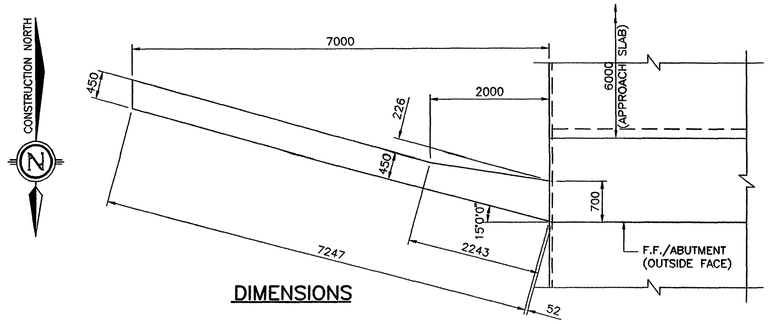
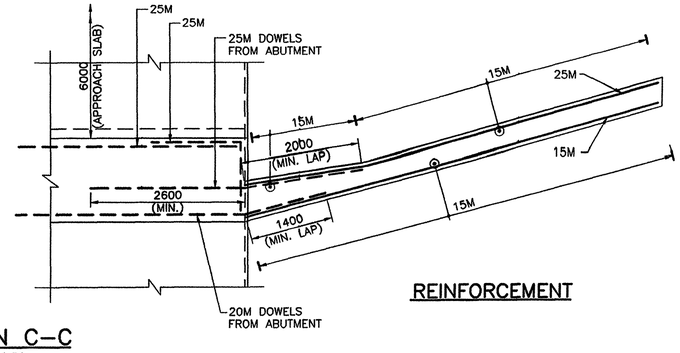
COOKSVILLE CREEK

FRAME DETAILS

DRAWN BY YB	DATE SEPT., 2005
DESIGNED BY IE	SCALE AS NOTED
CHK'D./APP'D. DL	PROJ. No. 54-22227
PARK NUMBER	DRAWING NUMBER
C45053	3

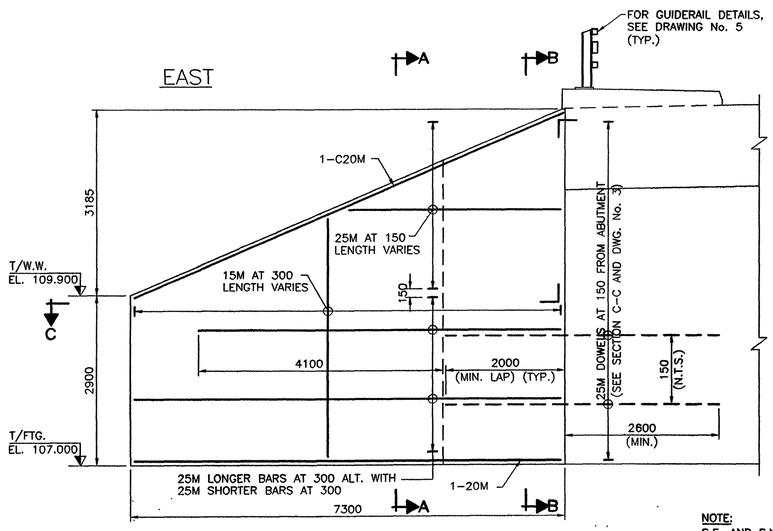


DIMENSIONS



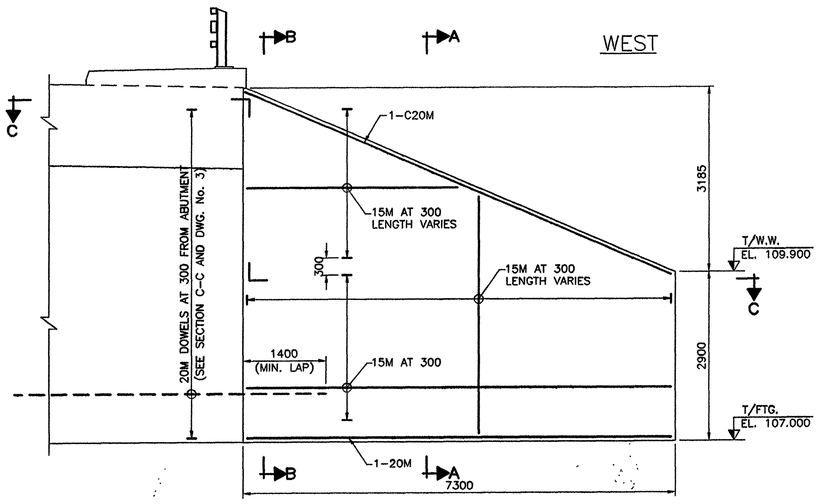
REINFORCEMENT

SECTION C–C
SCALE 1:50

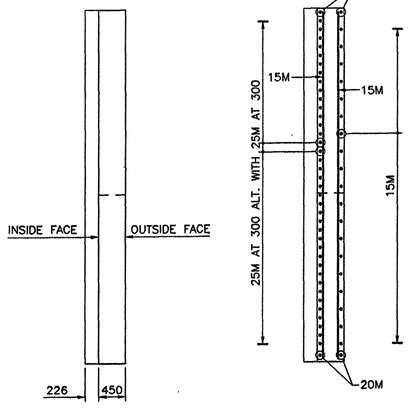


S.E. WINGWALL–INSIDE FACE
SCALE 1:50
(SEE S.W. WINGWALL FOR OUTSIDE FACE REINFORCING)

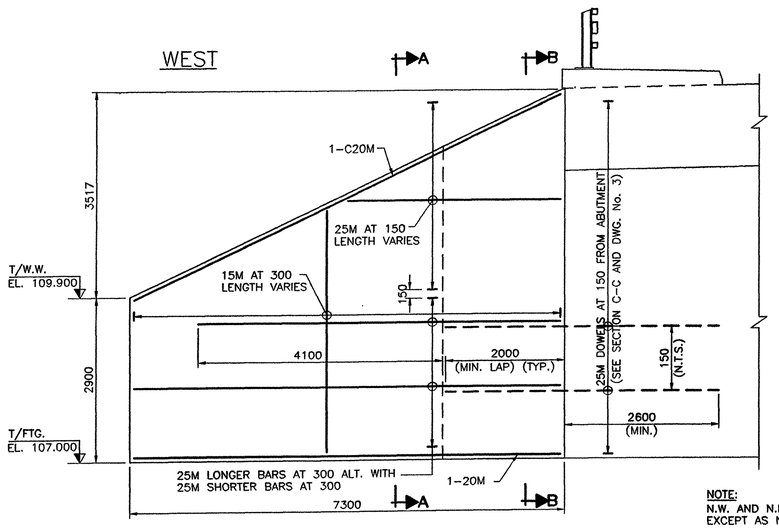
NOTE:
S.E. AND S.W. WINGWALLS ARE MIRROR IMAGE, EXCEPT AS NOTED.



S.W. WINGWALL–OUTSIDE FACE
SCALE 1:50
(SEE S.E. WINGWALL FOR INSIDE FACE REINFORCING)

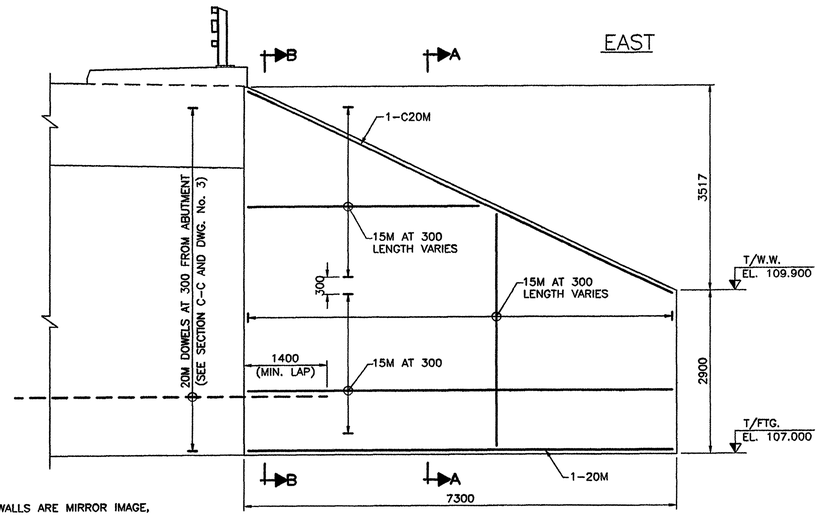


DIMENSIONS REINFORCEMENT
SECTION A–A
SCALE 1:50

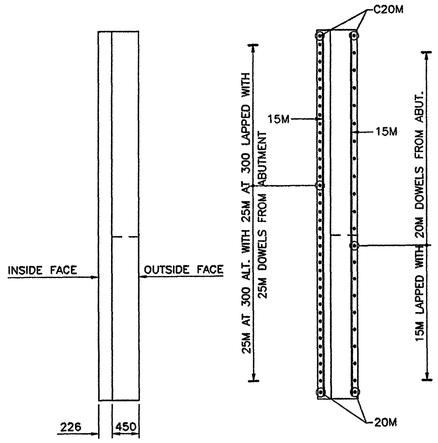


N.W. WINGWALL–INSIDE FACE
SCALE 1:50
(SEE N.E. WINGWALL FOR OUTSIDE FACE REINFORCING)

NOTE:
N.W. AND N.E. WINGWALLS ARE MIRROR IMAGE, EXCEPT AS NOTED.



N.E. WINGWALL–OUTSIDE FACE
SCALE 1:50
(SEE N.W. WINGWALL FOR INSIDE FACE REINFORCING)



DIMENSIONS REINFORCEMENT
SECTION B–B
SCALE 1:50

NOTES:

- UNDERSIDE OF WINGWALLS TO BE SUPPORTED UNTIL DECK IS CAST AND FALSEWORK REMOVED.
- REINFORCING STEEL BARS TO BE CONTINUOUS THROUGH CONSTRUCTION JOINT.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING No. 3.

APPLICABLE STANDARD DRAWINGS

OPSD–4670.000 TYPICAL JOINT DETAILS

LEGEND

F.F. FRONT FACE
B.F. BACK FACE
N.T.S. NOT TO SCALE

NO.	DATE	DESCRIPTION	APP'D.
3			
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REVISIONS

D. LeBLANC — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — 19/07/06

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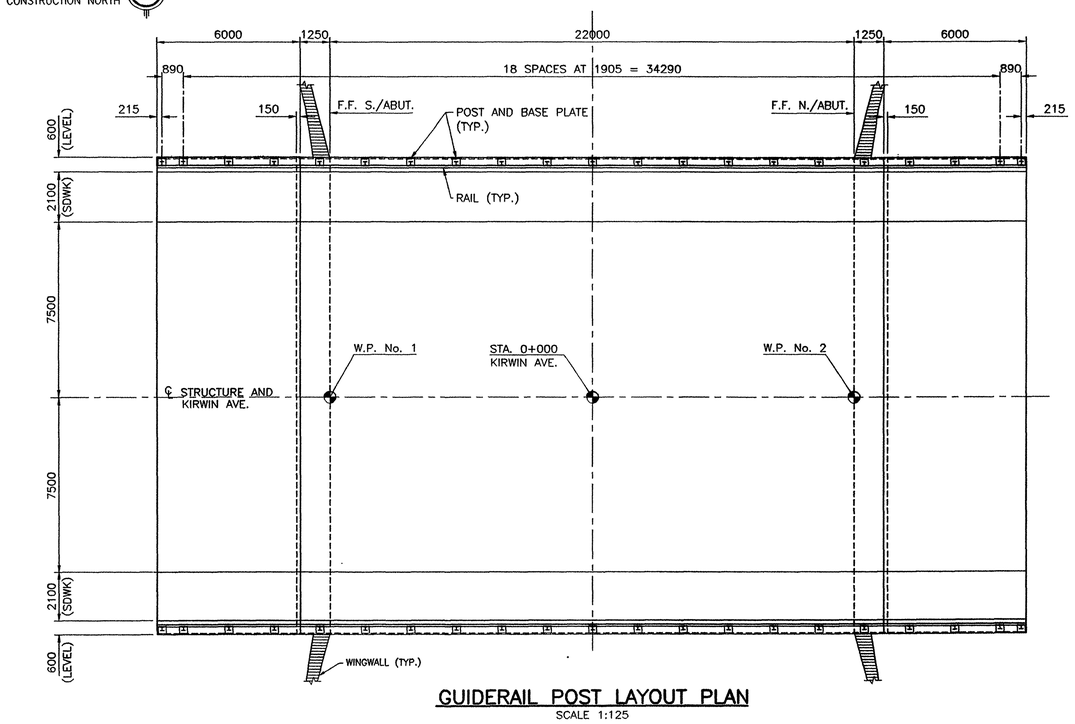
COOKSVILLE CREEK

WINGWALLS

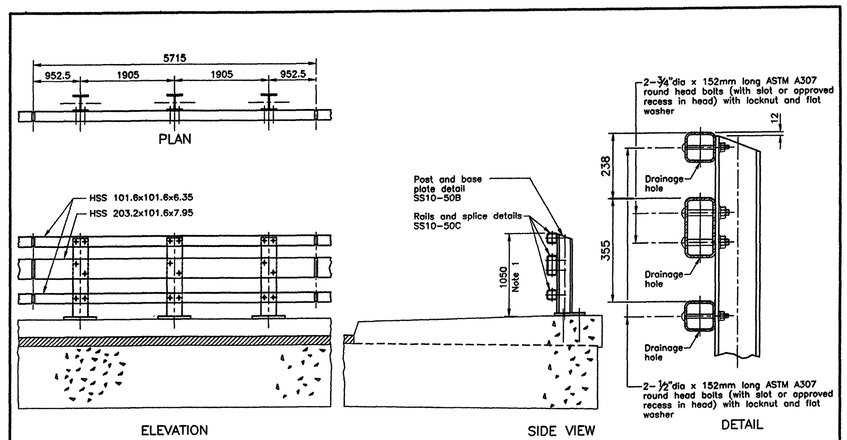
DRAWN BY YB DATE SEPT., 2005
DESIGNED BY IE SCALE AS NOTED
CHK'D./APP'D. DL PROJ. No. 54–22227

PARK NUMBER C45054
DRAWING NUMBER 4



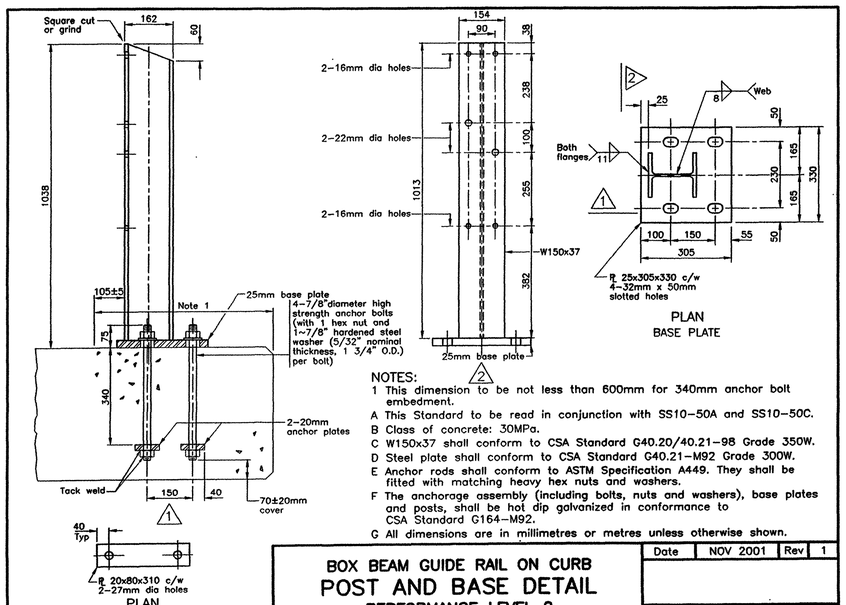
GUIDERAIL POST LAYOUT PLAN

SCALE 1:125



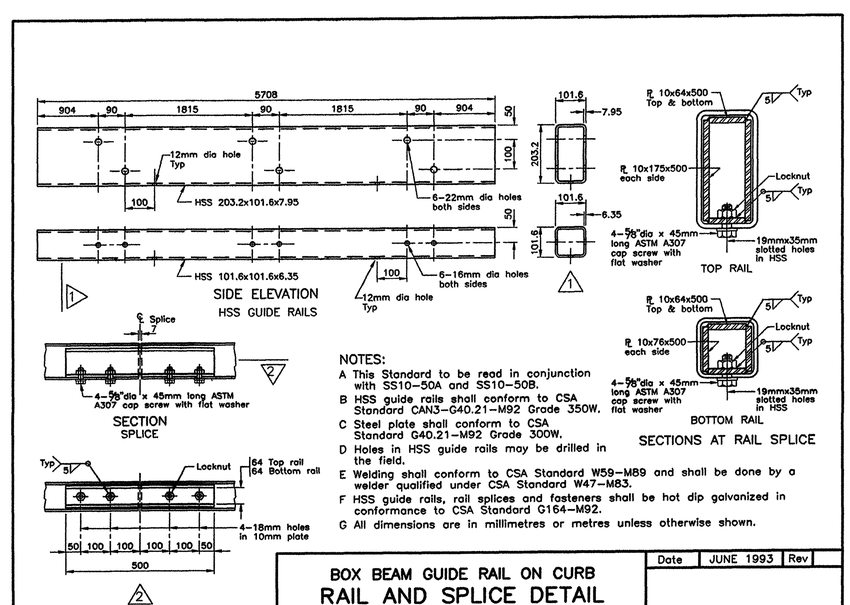
NOTES:
1 Mounting height shall be measured to top of guide rail.
A This Standard to be read in conjunction with SS10–50B and SS10–50C.
B Posts to be set vertical.
C All dimensions are in millimetres or metres unless otherwise shown.

BOX BEAM GUIDE RAIL ON CURB ASSEMBLY DETAIL PERFORMANCE LEVEL 2	Date	JUNE 1993	Rev	
	SS10–50A (MOD.)			



NOTES:
1 This dimension to be not less than 600mm for 340mm anchor bolt embedment.
A This Standard to be read in conjunction with SS10–50A and SS10–50C.
B Class of concrete: 30MPa.
C W150x37 shall conform to CSA Standard G40.20/40.21–98 Grade 350W.
D Steel plate shall conform to CSA Standard G40.21–M92 Grade 300W.
E Anchor rods shall conform to ASTM Specification A449. They shall be fitted with matching heavy hex nuts and washers.
F The anchorage assembly (including bolts, nuts and washers), base plates and posts, shall be hot dip galvanized in conformance to CSA Standard G164–M92.
G All dimensions are in millimetres or metres unless otherwise shown.

BOX BEAM GUIDE RAIL ON CURB POST AND BASE DETAIL PERFORMANCE LEVEL 2	Date	NOV 2001	Rev	1
	SS10–50B (MOD.)			



NOTES:
A This Standard to be read in conjunction with SS10–50A and SS10–50B.
B HSS guide rails shall conform to CSA Standard CAN3–G40.21–M92 Grade 350W.
C Steel plate shall conform to CSA Standard G40.21–M92 Grade 300W.
D Holes in HSS guide rails may be drilled in the field.
E Welding shall conform to CSA Standard W59–M89 and shall be done by a welder qualified under CSA Standard W47–M83.
F HSS guide rails, rail splices and fasteners shall be hot dip galvanized in conformance to CSA Standard G164–M92.
G All dimensions are in millimetres or metres unless otherwise shown.

BOX BEAM GUIDE RAIL ON CURB RAIL AND SPLICE DETAIL PERFORMANCE LEVEL 2	Date	JUNE 1993	Rev	
	SS10–50C			

NO.	DATE	DESCRIPTION	APP'D.
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LICENSED PROFESSIONAL ENGINEER D. LeBLANC 100166 PROVINCE OF ONTARIO

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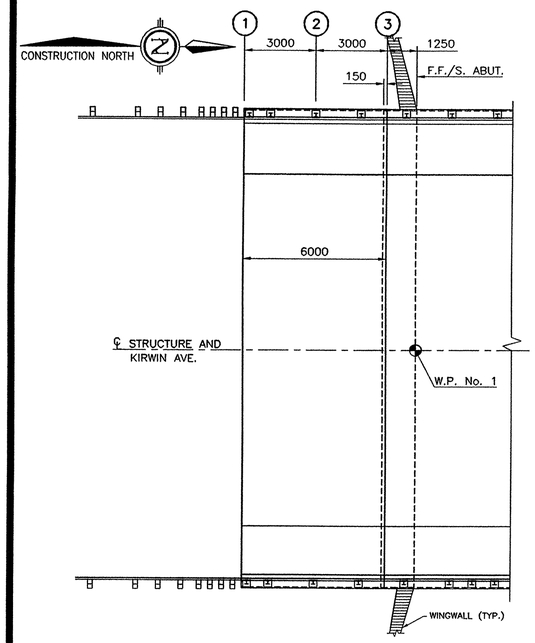
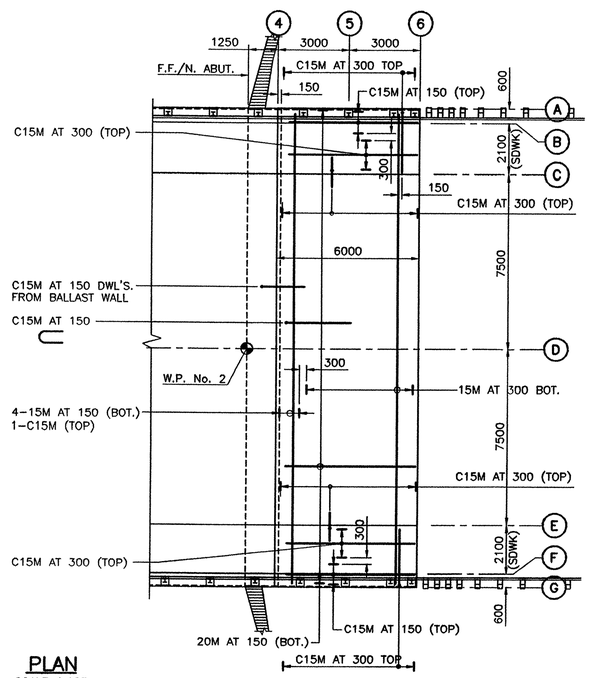
COOKSVILLE CREEK

GUIDERAIL DETAILS

DRAWN BY YB	DATE SEPT., 2005
DESIGNED BY IE	SCALE AS NOTED
CHK'D./APP'D. DL	PROJ. No. 54-22227

PARK NUMBER	DRAWING NUMBER
C45055	5

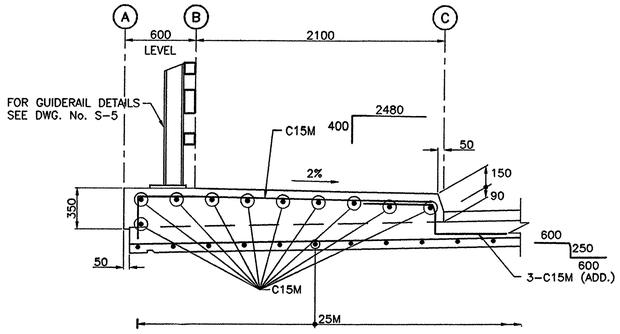




PLAN

SCALE 1:125

NOTE: SOUTH SIDE IS SIMILAR AND MIRROR IMAGE



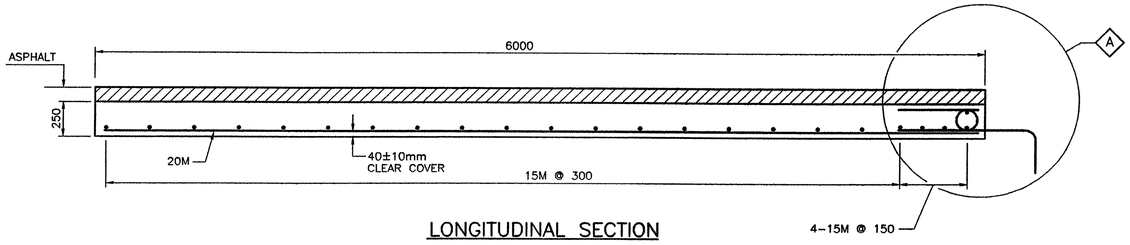
SECTION AT SIDEWALK

SCALE 1:25

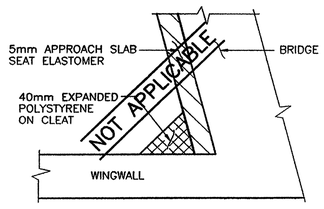
TOP OF CONCRETE SCREED ELEVATIONS						
	SOUTH APPROACH SLAB			NORTH APPROACH SLAB		
	1	2	3	4	5	6
A & G	113.357	113.389	113.424	113.829	113.886	113.943
B & F	113.357	113.389	113.424	113.829	113.886	113.943
C & E	113.076	113.108	113.143	113.548	113.605	113.662
D	113.226	113.258	113.293	113.698	113.755	113.812

NOTE:

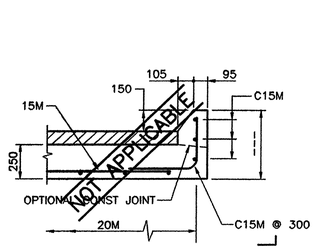
- SCREED ELEVATIONS ARE GIVEN TO TOP OF CONCRETE.



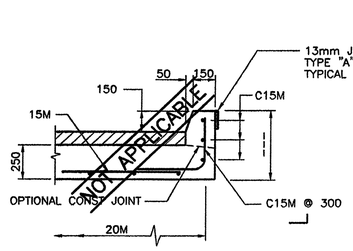
LONGITUDINAL SECTION



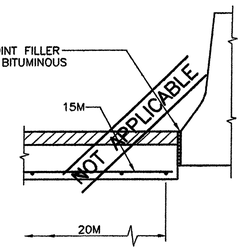
DETAIL AT CLEAT



WITHOUT SIDEWALK

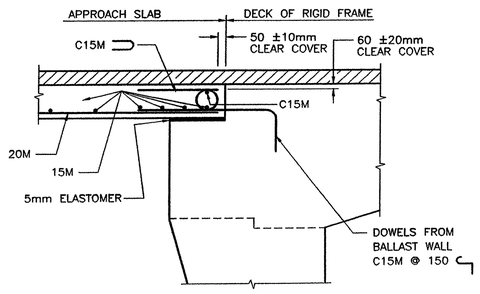


WITH SIDEWALK

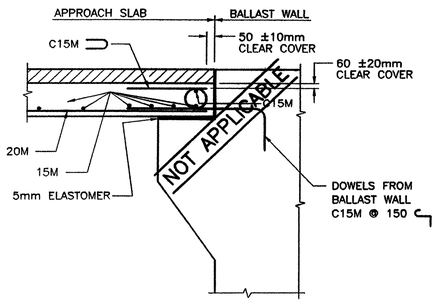


WITH ROADSIDE BARRIER

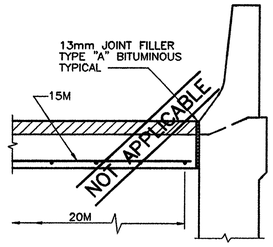
SECTION BEYOND WINGWALL



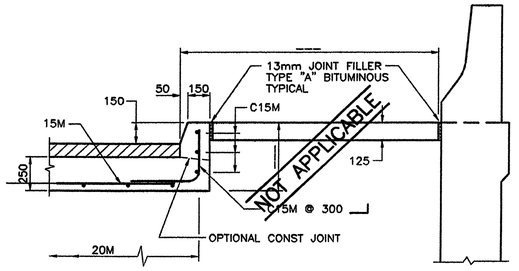
FOR BRIDGES WITHOUT EXPANSION JOINTS



FOR BRIDGES WITH EXPANSION JOINTS



WITHOUT SIDEWALK



WITH SIDEWALK

SECTION AT WINGWALL

STANDARD DRAWING JUNE 2002	SS116-1
6000 mm APPROACH SLAB	

NOTES:

1. CLEAR COVER TO REINFORCING STEEL 70 ± 20mm EXCEPT AS NOTED.
2. LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
3. BARS MARKED WITH PREFIX 'C' DENOTES COATED BARS.
4. WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD-3906.020.
5. WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINT (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD-3906.030.

APPLICABLE STANDARD DRAWINGS

OPSD-3906.020 BRIDGE DECK WATERPROOFING - HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD.

OPSD-3906.030 BRIDGE DECK WATERPROOFING DETAILS AT ACTIVE WIDE CRACKS GREATER THAN 2mm AND CONSTRUCTION JOINTS.

NO.	DATE	DESCRIPTION	APP'D.
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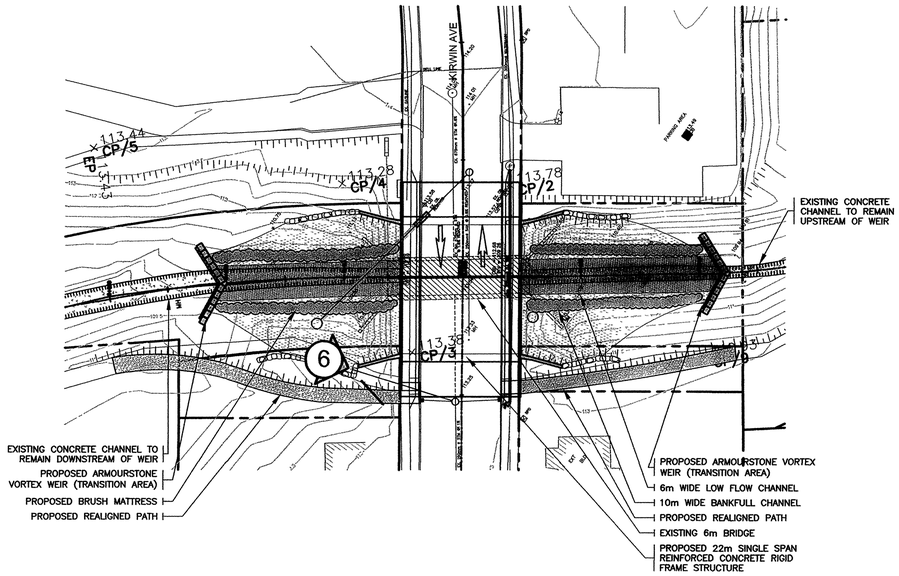
www.tsh.on

COOKSVILLE CREEK

6000mm APPROACH SLAB

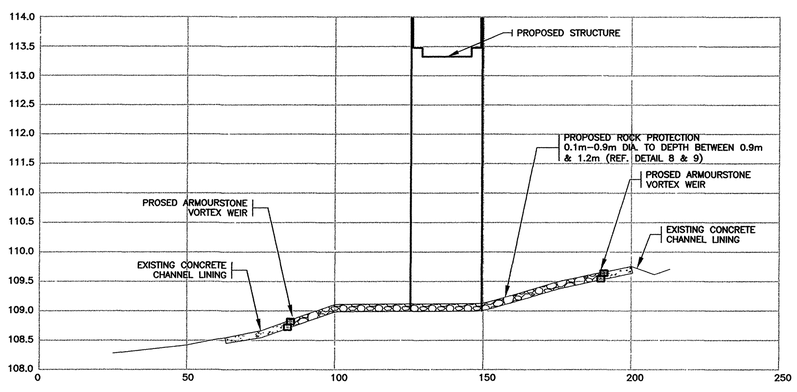
DRAWN BY	YB	DATE	SEPT., 2005
DESIGNED BY	IE	SCALE	AS NOTED
CHK'D./APP'D.	DL	PROJ. No.	54-22227

PARK NUMBER	DRAWING NUMBER
C45056	6



PLAN 1

1 : 500

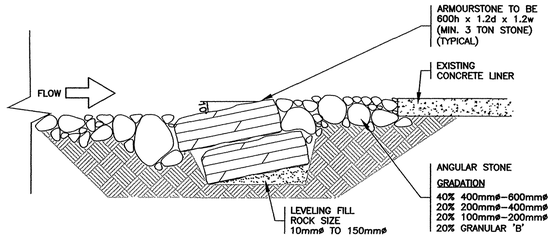


PROPOSED PROFILE 2

HORZ: 1 : 1000
VERT: 1 : 50

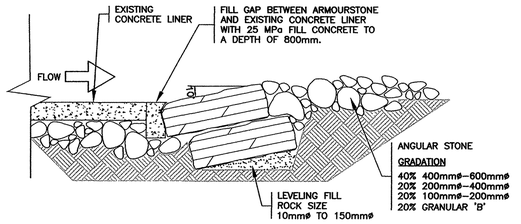
SECTION TYPICAL CREEK RESTORATION SECTION BELOW BRIDGE DECK 3

1 : 50



PLAN DOWN STREAM SECTION FOR VORTEX WEIR 4

1 : 50

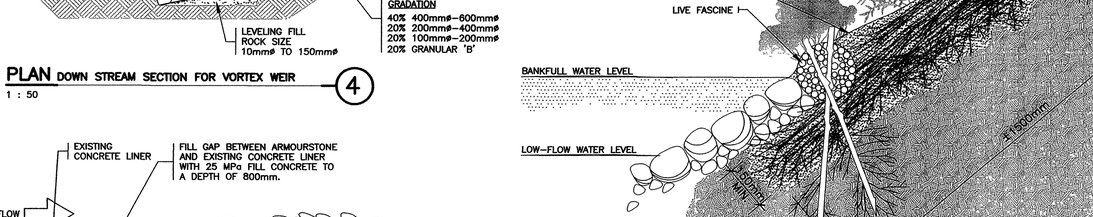


PLAN UP STREAM SECTION FOR VORTEX WEIR 5

1 : 50

ELEVATION 250mmø STM OUTLET 6

1 : 25

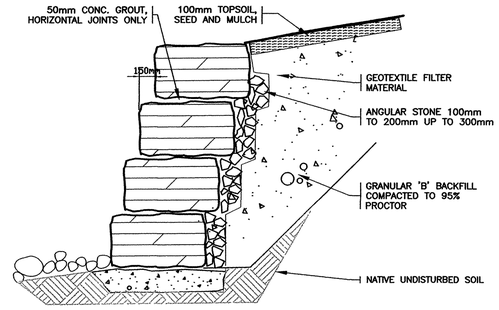


PLAN TYPICAL CREEK RESTORATION SECTION 7

1:50

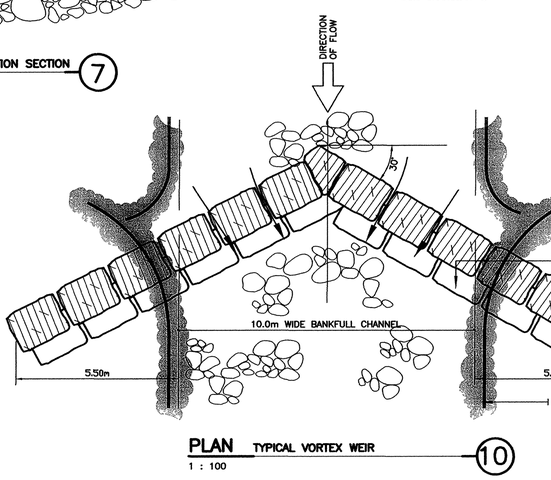
DETAIL TYPICAL BRUSH MATTRESS DETAIL 8

1 : 100



SECTION TYPICAL RETAINING WALL SECTION 9

1 : 25



PLAN TYPICAL VORTEX WEIR 10

1 : 100

NORTH

NOTE:

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NO.	DATE	REVISIONS DESCRIPTION	APP'D.
	19/07/06	ISSUE FOR CONSTRUCTION	
4	05/06	REMOVED 675mmø STM OUTLET DETAIL	
3	04/06	DETAIL REVISION	
2	02/06	DETAIL REVISION	
1	01/06	SECTION REVISION	

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Totten Sims Hubicki Associates (1997) Limited

COOKSVILLE CREEK KIRWIN AVENUE STRUCTURE REPLACEMENT

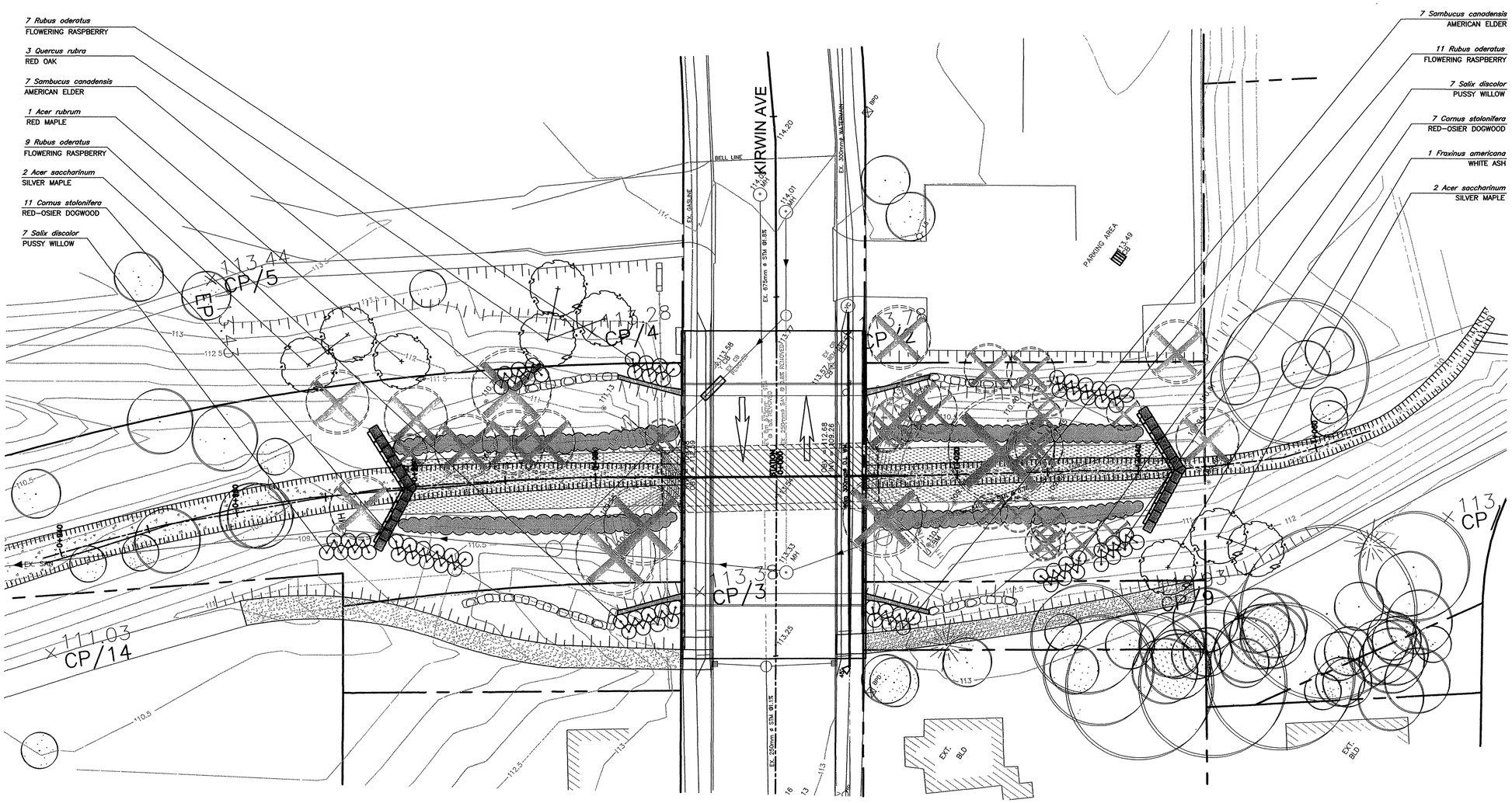
CONTRACT NO. 17 111 04132

CREEK RESTORATION DETAILS

DRAWN BY	KV	DATE	OCTOBER, 2005
DESIGNED BY	WW	SCALE	HORZ: 1:500 VERT: 1:50
CHK'D./APP'D.	WW	PROJ. No.	54–22227

DRAWING NUMBER

C45057 D1



PLANT MATERIAL LIST

QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES				
3	Acer saccharinum	Silver Maple	45mm cal.	W.B.
1	Acer rubrum	Red Maple	45mm cal.	W.B.
1	Fraxinus americana	White Ash	45mm cal.	W.B.
3	Quercus rubra	Red Oak	175cm ht.	W.B.
SHRUBS				
14	Salix discolor	Pussy Willow	50cm	2 Gallon
18	Cornus sericea	Red Osier Dogwood	50cm	2 Gallon
27	Rubus oderatus	Flowering Raspberry	50cm	2 Gallon
14	Sambucus canadensis	American Elder	60cm	3 Gallon

GENERAL NOTES

1. CONSTRUCTION ACCESS TO BE RESTORED TO ORIGINAL CONDITION AT COMPLETION OF CONTRACT. 100mm TOPSOIL, SEED AND MULCH.

2. ALL UNSUITABLE AND/OR EXCESS MATERIAL TO BE DISPOSED OF OFF SITE.

3. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE INDICATED

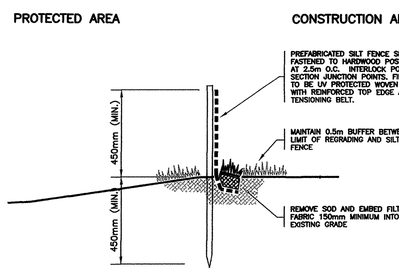
4. DURING CONSTRUCTION ALL VEGETATION AND STRUCTURES ON PRIVATE PROPERTY, ADJACENT TO THE WORK, IS TO BE PROTECTED OR RESTORED TO ORIGINAL CONDITION IF REMOVAL IS REQUIRED.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT, SURVEY AND LOCATION OF ALL UTILITIES.

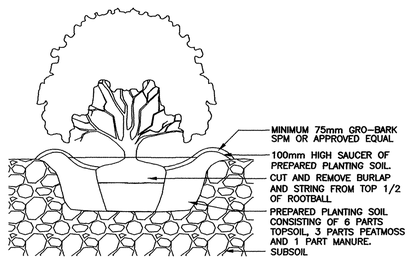
6. ALL CONSTRUCTION AND TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO START OF CONSTRUCTION, AFTER LAYOUT AND SHALL BE INSPECTED BY THE ENGINEER

7. RESTORE DISTURBED AREAS AND INSTALL VEGETATIVE COVER AS SOON AS POSSIBLE.

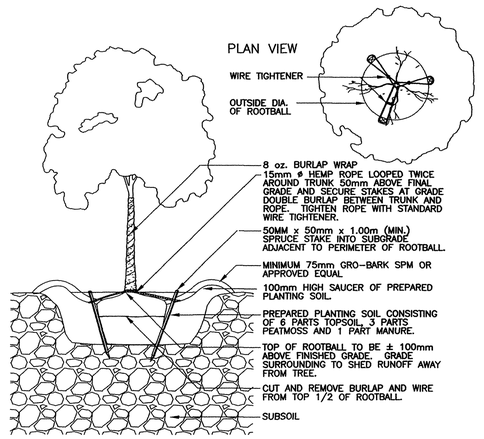
8. SILT CONTROL FENCE SHOULD BE INSTALLED PRIOR TO CONSTRUCTION AND BE LEFT IN PLACE DURING AND AFTER CONSTRUCTION UNTIL THE VEGETATION HAS BEEN ESTABLISHED AND THE SITE IS STABILIZED. REFER TO DETAIL 1.



DETAIL SILT CONTROL FENCING ①
N.T.S.



TYPICAL SHRUB DETAIL ②
N.T.S.



TYPICAL DECIDUOUS TREE DETAIL ③
N.T.S.

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LEGEND

- EXISTING DECIDUOUS TREE – caliper greater than 20cm
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE – to be removed
- EXISTING CONIFEROUS TREE – to be removed
- PROPOSED DECIDUOUS TREE
- PROPOSED SHRUB
- PROPOSED BRUSH MATTRESS
- LIMIT OF CONSTRUCTION

19/07/06 ISSUE FOR CONSTRUCTION

NO. DATE DESCRIPTION APP'D.
REVISIONS

REGISTERED PROFESSIONAL ENGINEER R. H. TUFGAR PROVINCE OF ONTARIO

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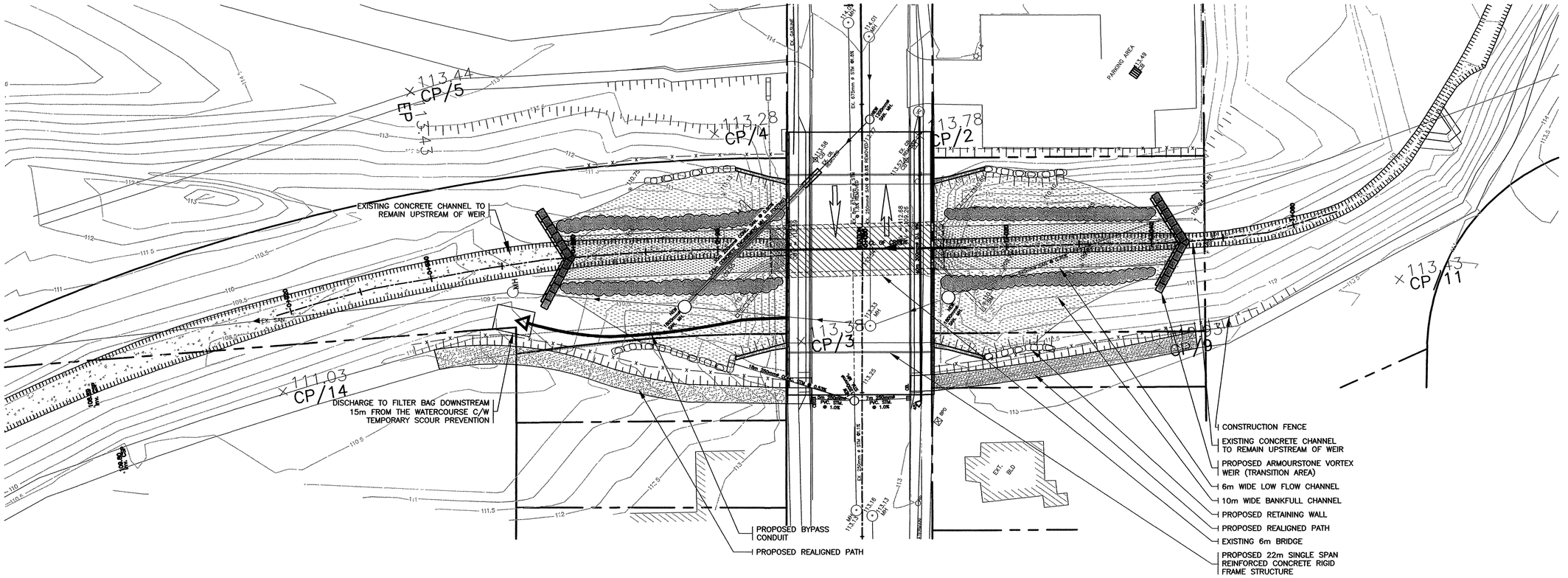
COOKSVILLE CREEK KIRWIN AVENUE STRUCTURE REPLACEMENT

CONTRACT NO. 17 111 04132

CREEK RESTORATION PLANTING PLAN

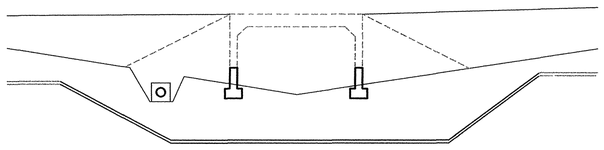
DRAWN BY KV DATE OCTOBER, 2005
DESIGNED BY WW SCALE 1:250
CHK'D./APP'D. WW PROJ. No. 54-22227

DRAWING NUMBER
C45058 PL1



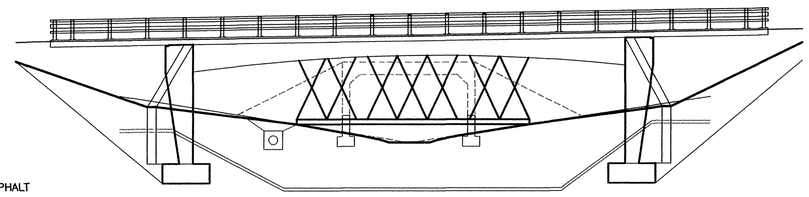
PHASE 1

1. CREATE STREAM BYPASS
2. REMOVE EXISTING BRIDGE
3. REPLACE UTILITIES (SAN, STORM, WATER)



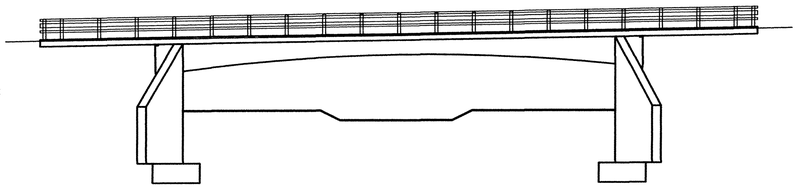
PHASE 2

1. PREPARE CREEK BED BELOW PROPOSED BRIDGE
2. EXCAVATE AND POUR FOOTINGS
3. ERECT FALSEWORK
4. POUR ABUTMENTS
5. POUR DECK
6. POUR SIDEWALKS
7. PLACE WATERPROOFING AND ASPHALT
8. INSTALL RAILING
9. OPEN ROAD



PHASE 3

1. RESTORE CREEK
2. RESTORE LANDSCAPE AND PATHWAYS
3. DEMOBILIZE

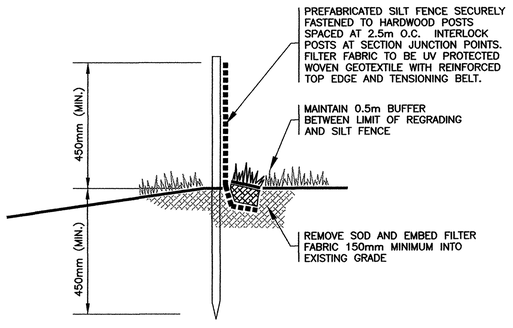


CONTROL POINTS

PNO	DSC	NTH	EST	ELV
1	CP/2	4987.055	2648.733	113.784
2	CP/3	4983.608	2616.054	113.382
3	CP/4	5010.221	2632.383	113.282
4	CP/5	5047.744	2612.526	113.437
5	CP/6	4982.877	2673.346	113.957
6	CP/9	4943.084	2644.433	113.931
7	CP/11	4921.487	2671.187	113.421
8	CP/14	5037.683	2568.642	111.030

PROTECTED AREA

CONSTRUCTION AREA



DETAIL SILT CONTROL FENCING 1

N.T.S.

CONSTRUCTION NOTES:

1. CONSTRUCTION FENCE TO BE INSTALLED AND MAINTAINED TO PROVIDE PEDESTRIAN PASSAGE THROUGHOUT THE PERIOD OF CONSTRUCTION.
2. THE LOCATION OF THE CONSTRUCTION FENCE TO BE AS INDICATED OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES:

1. CONSTRUCTION ACCESS TO BE RESTORED TO ORIGINAL CONDITION AT COMPLETION OF CONTRACT. 100mm TOPSOIL, SEED AND MULCH.
2. ALL UNSUITABLE AND/OR EXCESS MATERIAL TO BE DISPOSED OF OFF SITE.
3. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE INDICATED
4. DURING CONSTRUCTION ALL VEGETATION AND STRUCTURES ON PRIVATE PROPERTY, ADJACENT TO THE WORK, IS TO BE PROTECTED OR RESTORED TO ORIGINAL CONDITION IF REMOVAL IS REQUIRED.
5. NON WOVEN GEOTEXTILE TO BE terrafix 270R OR APPROVED EQUIVALENT.
6. ALL WORKS AND MATERIALS TO BE IN ACCORDANCE WITH APPLICABLE CITY OF MISSISSAUGA AND/OR ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT, SURVEY AND LOCATION OF ALL UTILITIES.
8. ALL CONSTRUCTION AND TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO START OF CONSTRUCTION, AFTER LAYOUT AND SHALL BE INSPECTED BY THE ENGINEER
9. RESTORE DISTURBED AREAS AND INSTALL VEGETATIVE COVER AS SOON AS POSSIBLE.
10. SILT CONTROL FENCE SHOULD BE INSTALLED PRIOR TO CONSTRUCTION AND BE LEFT IN PLACE DURING AND AFTER CONSTRUCTION UNTIL THE VEGETATION HAS BEEN ESTABLISHED AND THE SITE IS STABILIZED. REFER TO DETAIL 1.
11. ALL STOCKPILE AREAS TO BE ENCLOSED WITH A SILT CONTROL FENCE.

NORTH

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NO.	DATE	DESCRIPTION	APP'D.
3			
2	04/06	PHASES OF CONSTRUCTION	
1	02/06	IDENTIFIED CHANNEL	

REVISIONS

19/07/06 ISSUE FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER R. H. TUFGAR PROVINCE OF ONTARIO

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COOKSVILLE CREEK KIRWIN AVENUE STRUCTURE REPLACEMENT

CONTRACT NO. 17 111 04132

SEDIMENT AND EROSION CONTROL DETAILS

DRAWN BY KV DATE OCTOBER, 2005
DESIGNED BY WW SCALE 1:300
CHK'D./APP'D. WW PROJ. No. 54-22227

DRAWING NUMBER

C45059 S&E 1