

**NELSON/CLARENCE DYKE**

**Dyke Inspection Sheet**

Dyke: Nelson/Clarence Dyke  
Weather: Sunny, 27 °C  
Immediate Action Required •

**Report No.: 1 of 2**

Date: June 21, 2004  
Inspected By: N.Oliveira, S.Jeater  
Further Investigative Work •

General Information	
<p><u>Section Inspected:</u> Complete • Section ✓ Specify: <u>0+000</u> to <u>0+300</u> m</p>	<p><u>Overall Condition Rating:</u> 3 (this section only) <b>Comments:</b> Condition rating relates to general inability to assess dyke condition based on dense vegetation present. In addition, areas noted with loss of vegetation along steep slopes should be monitored to assess potential for future movement/slipping.</p>
<p><u>Adjacent Property Use:</u> Residential ✓ Parkland ✓ Commercial • Industrial •</p>	<p><b>Comments:</b> Adjacent residential from 0+000 to 0+125. The Richard B. Harrison Park borders the dyke from 0+125 to 0+300.</p>
Dyke Facing	
<p><u>Dyke Face Material:</u> Concrete • Gabion •  Earthfill ✓ Other ✓ Specify: Rip-rap, wood chip <b>Condition Rating:</b> 3 <b>Comments:</b> Dyke face consists primarily of dense vegetation (trees, bushes, shrubs, wild grass). Areas of toppled trees, etc. correlated to steep slopes along the dyke face. Scattered wood chips were observed overlying the upper face of the dyke near St. 0+080 and ~0+185. Rip-rap noted near St. 0+150 and ~0+220 surrounded sanitary manhole structures and extended to the toe of the dyke.</p>	<p><u>Structural Condition (Dyke Face):</u> Erosion • Damage (impact, cracks, etc) • Movement (including unevenness, slipping, bulging or slumping) ✓ Specify type: <b>Condition Rating:</b> 3 <b>Comments:</b> Due to the access restrictions caused by the dense nature of the vegetation and the steep slopes encountered, sections of the dyke could not be inspected. Areas visually inspected from the top of the dyke showed loss of vegetation along the side slopes likely due to the steep slope conditions encountered.</p>
<p><u>Toe:</u> Toe Protection Material (concrete, gabion, earth or other) Specify: Primarily earth (soil) with overlying dense vegetation. Rip-rap at locations 0+150 and 0+220 corresponding to the sanitary manhole structures. Erosion Yes • No ✓ <b>Condition Rating:</b> 4 <b>Comments:</b> No signs of erosion noted, however sections of the toe could not be visually inspected due to access restrictions.</p>	<p><u>Joints:</u> (not applicable to earthfill dykes) Sealant Present Yes • No •  <b>If yes, condition rating:</b> Vegetation (in joints) Yes • No • <b>Comments:</b> Not applicable.</p>
<p><u>Vegetation:</u> None • Full ✓ Partial • Type: Primarily trees with shrubs, bushes, wild grass, etc. <b>Comments:</b> Vegetation generally well established along side slopes of dyke, however some loss has occurred likely due to the steep slope conditions.</p>	<p><u>Water Infiltration:</u> (look for where water can leak behind structure) Yes • No ✓ If yes, due to: Joints • Cracks • Liner • Other (specify) • <b>Comments:</b></p>
<p><u>Additional Information:</u> Access Available Yes • No ✓ <u>Estimated Water Depth:</u> variable <b>Comments:</b> Access available down the rip-rap areas previously noted (at sanitary manhole structures), however rip-rap noted to be loose and the side slopes steep. The dense vegetation elsewhere generally prevents access along the face and to the toe of the structure.</p>	
Top of Dyke	
<p><u>Dyke Top Material:</u> Concrete • Asphalt ✓ Earth ✓ Rip Rap •  Other ✓ Specify: Grass, vegetation, wood chip <b>Condition Rating:</b> 4 <b>Comments:</b> Generally grass and asphalt pathway from St. 0+000 to ~0+160. Wood chip pathway from 0+160 to 0+230 (photo 7630) becoming dirt pathway from 0+230 to 0+300 (photo 7635).</p>	<p><u>Structural Condition (Top of Dyke):</u> Erosion (behind wall, etc.) • Damage (vandalism, etc) • Movement (including unevenness, heaving or settlement) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> No noticeable signs of erosion.</p>
<p><u>Pedestrian Access:</u> Sidewalk • Pathway ✓ None • Other • Specify: If present, width of access way: <b>Condition Rating (if present):</b> 4 <b>Comments:</b> Pathway consisting primarily of asphalt from St. 0+000 to 0+160, becoming wood chip from 0+160 to 0+230. Dirt pathway encountered from 0+230 to 0+300. Note that access becomes increasingly restricted from ~0+260 onwards due to vegetation growth along the dyke face and behind the structure.</p>	<p><u>Protective Barrier:</u> Fence • Guard Rail ✓ None ✓ Other • Specify: <b>Condition Rating (if present):</b> 4 <b>Comments:</b> Single cable guide rail located from St. 0+025 to ~0+125. No protective barrier present from 0+125 to 0+300.</p>

Top of Dyke - Continued	
<p><u>Joints</u> : (not applicable to earthfill dykes)            Sealant Present      Yes   •                      No   •  <b>If yes, condition rating:</b>            Vegetation (in joints)      Yes   •                      No   •  <b>Comments:</b> Not applicable.</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good      ✓                                      Poor   •  <b>Comments:</b> No ponding of water observed along top of dyke.</p>
<p><u>Illumination:</u> (check for lighting present along the top of the dyke)            Yes   •                                      No   ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>	<p><u>Vegetation:</u>            None   •                                      Full   •                                      Partial   ✓            Type: Grass  <b>Comments:</b> Some grassed areas observed between edge of dyke and asphalt pavement.</p>
<p><u>Additional Information:</u>  <b>Comments:</b> Sanitary manhole structures located along the top of dyke at St. 0+150 and 0+220. Steep slopes along the dyke face separated from the edge of the asphalt pathway by approximately 0.6m in some areas (photo 7615).</p>	
Area behind the Dyke (immediately adjacent)	
<p><u>Predominant Material:</u>            Concrete   •                                      Asphalt   •            Earth      ✓                                      Grass      ✓            Other      ✓                                      Specify:    Rough vegetation  <b>Condition Rating:</b> 4  <b>Comments:</b> Predominantly grass from St. 0+000 to 0+150, becoming earth with rough vegetation (mostly trees) to 0+300 (general area within Richard B. Harrison Park).</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good                                      ✓                                      Poor   •  <b>Comments:</b> Although ponded water was not observed during the site visit (dry conditions), low lying areas were noted behind the dyke, in several areas.            Are catchbasins present?      Yes   •                                      No   ✓  <b>If yes, condition rating:</b>  <b>Comments:</b></p>
<p><u>Vegetation:</u>            None   •                                      Full   ✓                                      Partial   •            Type:  <b>Comments:</b> See above.</p>	<p><u>Accessibility:</u> (check for access areas behind the dyke only)            Sidewalks   •      Pathways   •      Roads   •      None   ✓  <b>Condition Rating (if present):</b> 4  <b>Comments:</b> Area behind the dyke generally accessed via private backyards up to St. 0+125. No pedestrian access paths constructed. No constructed pathways or access routes behind the structure from 0+125 to 0+300, however access is achievable through thick vegetation present.</p>
<p><u>Protective Barrier:</u>            Fence      ✓      Guard      ✓                                      None      ✓               Rail            Other   •                                      Specify:            If fence, list type and ownership (i.e. private or city): Chain link fencing from St. 0+000 to 0+115 appears to be privately owned. A single cable guide rail from St. 0+115 to ~0+130 on top of an armor stone retaining wall appears to be City owned. No railing is present from St. 0+130 to 0+300.  <b>Condition Rating (if present):</b> 3  <b>Comments:</b> Sections of privacy fence are rusted and bent.</p>	<p><u>Illumination:</u> (check for lighting present behind the dyke)            Yes   •                                      No   ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>
Storm Sewers/Sanitary Sewers/Outlet Structures	
<p>Yes      ✓                                      No   •      (if no, proceed to next section)            If yes, type of structure (i.e. outlet, headwall, drainage pipe, channel or flush): Specify: Concrete headwall with 250mm storm outlet and flap gate at ~St. 0+125 (photo 7621). Sanitary manhole structures at St. 0+150 and 0+220 (no visible outlets observed).  <b>Condition Rating:</b> 4  <b>Comments:</b> No signs of concrete deterioration.</p>	<p><u>Outlet:</u> (check for presence of gates or grates at the outlet)            Flap Gate      Yes      ✓                                      No   •            Safety Gate      Yes   •                                      No   •  <b>Condition Rating:</b> 4  <b>Comments:</b> Signs of recent flow through the outlet structure (photo 7622) verifies operation of flap gate.</p>
<p><u>Outlet Flow:</u> (check for condition of channel downstream from pipe, obstructions within pipe, etc.)            Obstructions                                      Yes   •                                      No   ✓            Downstream Erosion                                      Yes   •                                      No   ✓  <b>Comments:</b> No signs of erosion immediately downstream of the outlet structure. No outlets observed for the sanitary sewers.</p>	<p><b>General Comments:</b></p>

**RATING SYSTEM**

- |   |                            |   |
|---|----------------------------|---|
| 1 | <i>Unsafe Condition</i>    | Structure (or element) in very poor or unsafe condition which may pose public safety hazard.  |
| 2 | <i>Poor Condition</i>      | Structure (or element) in poor condition with significant deterioration noted. Deteriorations noted may impact on integrity and may require significant capital cost to bring to fair to poor condition rating. No safety hazard noted. |
| 3 | <i>Fair/Poor Condition</i> | Structure (or element) condition varies from fair to poor with some signs of significant deterioration in localized areas. Able to perform function, but at reduced capacity.   |
| 4 | <i>Fair Condition</i>      | Structure (or element) in fair condition with no visible signs of significant deterioration. Able to perform intended function with no apparent hindrance.  |
| 5 | <i>Good Condition</i>      | Structure (or element) in good condition with minor deterioration. Able to perform intended function with no apparent hindrance.  |

**Dyke Inspection Sheet**

Dyke: Nelson/Clarence Dyke  
Weather: Sunny, ~ 27 °C  
Immediate Action Required •

**Report No.: 2 of 2**

Date: June 21, 2004  
Inspected By: N.Oliveira, S.Jeater  
Further Investigative Work •

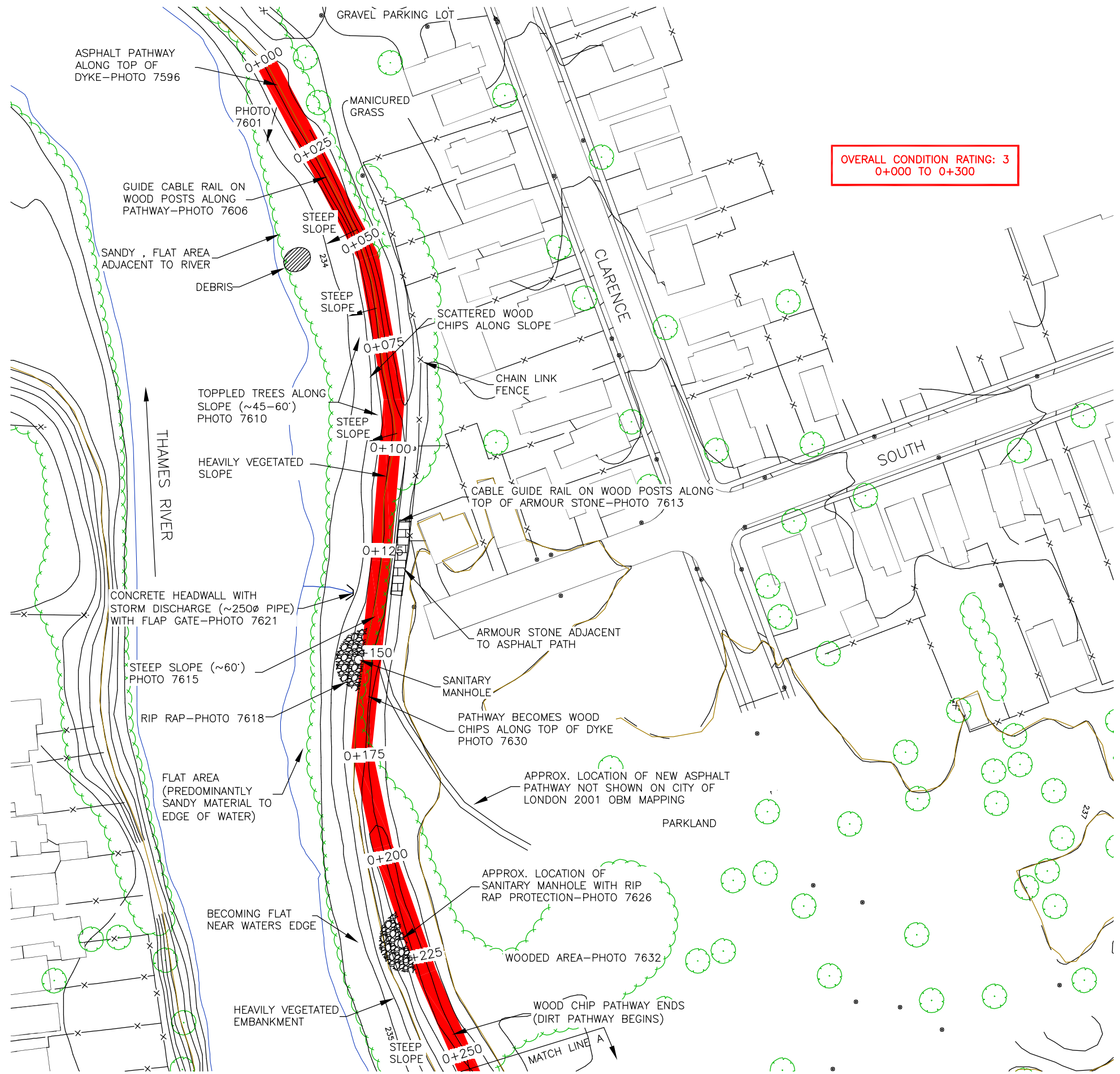
General Information	
<p><u>Section Inspected:</u> Complete • Section ✓ Specify: <u>0+300</u> to <u>0+600</u> m</p>	<p><u>Overall Condition Rating:</u> 3 (this section only) <b>Comments:</b> Generally less steep conditions encountered in comparison to the previous section inspected, however several steep areas were noted and should be monitored.</p>
<p><u>Adjacent Property Use:</u> Residential • Parkland ✓ Commercial ✓ Industrial •</p>	<p><b>Comments:</b> Adjacent parkland from 0+300 to 0+525. A daycare facility and commercial businesses border the dyke from 0+525 to 0+600 (termination at Wellington Road).</p>
Dyke Facing	
<p><u>Dyke Face Material:</u> Concrete • Gabion •  Earthfill ✓ Other ✓ Specify: Armor stone <b>Condition Rating:</b> 3 <b>Comments:</b> Dyke face consists primarily of dense vegetation (trees, bushes, shrubs, wild grass). Areas of toppled trees, etc. correlated to steep slopes along the dyke face (photo 7644). A washout area was observed along the dyke face at St. 0+305, causing erosion along the earth face. Armor stone floodwall noted along the dyke face, starting at ~St. 0+550 (photo 7664).</p>	<p><u>Structural Condition (Dyke Face):</u> Erosion ✓ Damage (impact, cracks, etc) • Movement (including unevenness, slipping, bulging or slumping) ✓ Specify type: <b>Condition Rating:</b> 3 <b>Comments:</b> Average rating relates primarily to the access restrictions caused by the dense nature of the vegetation and the steep slopes encountered throughout most of the dyke section inspected. Areas visually inspected from the top of the dyke showed loss of vegetation along the side slopes likely due to the steep slope conditions encountered along several areas. Armor stone was observed to be in good condition.</p>
<p><u>Toe:</u> <u>Toe Protection Material</u> (concrete, gabion, earth or other) Specify: Primarily earth (soil) with overlying dense vegetation. Becoming armor stone from St. 0+560 onwards. Erosion Yes • No ✓ <b>Condition Rating:</b> 4 <b>Comments:</b> No signs of erosion noted, however sections of the toe could not be visually inspected due to access restrictions.</p>	<p><u>Joints:</u> (not applicable to earthfill dykes) Sealant Present Yes • No •  <b>If yes, condition rating:</b> Vegetation (in joints) Yes • No • <b>Comments:</b> Not applicable.</p>
<p><u>Vegetation:</u> None • Full ✓ Partial • Type: Primarily trees with shrubs, bushes, wild grass, etc. <b>Comments:</b> Vegetation generally well established along side slopes of dyke, however some loss has occurred likely due to the steep slope conditions. Vegetation terminates near the start of the armor stone wall, at ~St. 0+550.</p>	<p><u>Water Infiltration:</u> (look for where water can leak behind structure) Yes • No ✓ If yes, due to: Joints • Cracks • Liner • Other (specify) • <b>Comments:</b> No water infiltration noted through dyke face.</p>
<p><u>Additional Information:</u> Access Available Yes • No ✓ <u>Estimated Water Depth:</u> variable <b>Comments:</b> The dense vegetation from St. 0+300 to 0+550 generally prevents access along the face and to the toe of the structure. The armor stone wall encountered at St. 0+550 is vertical, preventing access for visual inspection. Large retaining wall structure located along dyke face at ~St. 0+530 (photos 7658 and 7659) does not appear to relate to dyke operation (i.e. outlet structure, etc.), but may be attributed to past on-site structure.</p>	
Top of Dyke	
<p><u>Dyke Top Material:</u> Concrete • Asphalt ✓ Earth ✓ Rip Rap •  Other • Specify: <b>Condition Rating:</b> 4 <b>Comments:</b> Generally earth pathway along top of dyke from St. 0+300 to ~0+560, becoming asphalt pathway (photo 7664).</p>	<p><u>Structural Condition (Top of Dyke):</u> Erosion (behind wall, etc.) • Damage (vandalism, etc) • Movement (including unevenness, heaving or settlement) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> No noticeable signs of erosion.</p>
<p><u>Pedestrian Access:</u> Sidewalk • Pathway ✓ None • Other • Specify: If present, width of access way: <b>Condition Rating (if present):</b> 4 <b>Comments:</b> Dirt (earth pathway) pathway from St. 0+300 to ~0+560 (photo 7648) with several areas of restricted access due to dense vegetation present adjacent to top of dyke. Asphalt pathway from 0+560 onwards.</p>	<p><u>Protective Barrier:</u> Fence • Guard Rail ✓ None ✓ Other • Specify: <b>Condition Rating (if present):</b> 4 <b>Comments:</b> No protective barrier from St. 0+300 to ~0+560. Aluminum railing along asphalt pathway near start of armor stone at St. 0+560 (photo 7664).</p>

Top of Dyke - Continued	
<p><u>Joints</u> : (not applicable to earthfill dykes)            Sealant Present      Yes •                      No •  <b>If yes, condition rating:</b>            Vegetation (in joints)      Yes •                      No •  <b>Comments:</b></p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good      ✓                      Poor •  <b>Comments:</b> No ponding of water observed along top of dyke.</p>
<p><u>Illumination:</u> (check for lighting present along the top of the dyke)            Yes •                      No ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>	<p><u>Vegetation:</u>            None •                      Full •                      Partial ✓            Type: Grass  <b>Comments:</b> Some vegetation noted along top of dyke from St. 0+300 to ~0+560.</p>
<p><u>Additional Information:</u>  <b>Comments:</b></p>	
Area behind the Dyke (immediately adjacent)	
<p><u>Predominant Material:</u>            Concrete •                      Asphalt •            Earth      ✓                      Grass      ✓            Other      ✓                      Specify: Rough vegetation  <b>Condition Rating:</b> 4  <b>Comments:</b> Predominantly rough to sparse vegetation from St. 0+300 to 0+560, becoming manicured grass with secondary armor stone wall to 0+600 (termination at Wellington Road).</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good                      ✓                      Poor •  <b>Comments:</b> Although ponded water was not observed during the site visit (dry conditions), low lying areas were noted behind the dyke, in several areas.            Are catchbasins present?      Yes •                      No ✓  <b>If yes, condition rating:</b>  <b>Comments:</b></p>
<p><u>Vegetation:</u>            None •                      Full      ✓                      Partial •            Type:  <b>Comments:</b> See above.</p>	<p><u>Accessibility:</u> (check for access areas behind the dyke only)            Sidewalks •      Pathways      ✓      Roads •      None      ✓  <b>Condition Rating (if present):</b> 4  <b>Comments:</b> Area behind the dyke generally accessed through dense to sparse vegetation up to St. 0+560, although no constructed pathways are present. Becoming increasingly open at St. 0+560 onwards.</p>
<p><u>Protective Barrier:</u>            Fence •      Guard •                      None      ✓                                Rail            Other •      Specify:            If fence, list type and ownership (i.e. private or city): No railing present over section reviewed.  <b>Condition Rating (if present):</b>  <b>Comments:</b></p>	<p><u>Illumination:</u> (check for lighting present behind the dyke)            Yes •                      No      ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>
Storm Sewers/Sanitary Sewers/Outlet Structures	
<p>Yes      ✓                      No •      (if no, proceed to next section)            If yes, type of structure (i.e. outlet, headwall, drainage pipe, channel or flush): Specify: Storm and sanitary sewer outlets located at ~St. 0+580 (photos 7668 and 7670) under asphalt pathway. Sanitary manholes located near St. 0+520 and 0+530 behind dyke. Suspected cistern located at St. 0+375 (photo 7642). Reported sanitary outlet structure at St. 0+385 (as per City of London drawings provided) not observed at the time of the site visit.  <b>Condition Rating:</b> 4  <b>Comments:</b> No signs of concrete deterioration.</p>	<p><u>Outlet:</u> (check for presence of gates or grates at the outlet)            Flap Gate      Yes      ✓                      No •            Safety Grate      Yes •                      No •  <b>Condition Rating:</b> 3  <b>Comments:</b> Flap gates provided for storm and sanitary outlets (photos 7666 and 7667). Average rating reflects inability to access flap gates to confirm operation.</p>
<p><u>Outlet Flow:</u> (check for condition of channel downstream from pipe, obstructions within pipe, etc.)            Obstructions                      Yes •                      No      ✓            Downstream Erosion                      Yes •                      No      ✓  <b>Comments:</b> No signs of erosion immediately downstream of the outlets.</p>	<p><b>General Comments:</b></p>

**RATING SYSTEM**

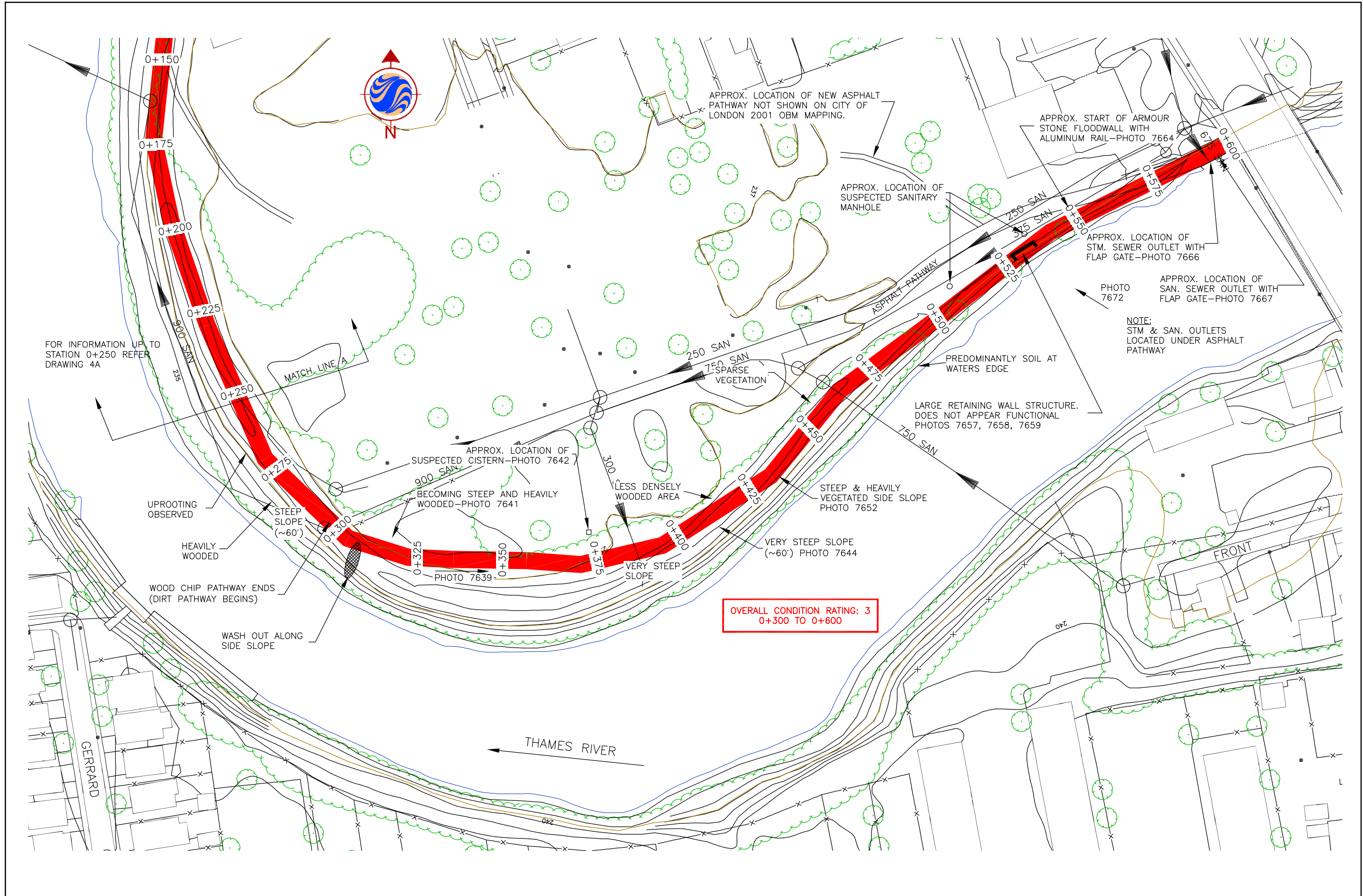
- |   |                            |   |
|---|----------------------------|---|
| 1 | <i>Unsafe Condition</i>    | Structure (or element) in very poor or unsafe condition which may pose public safety hazard.  |
| 2 | <i>Poor Condition</i>      | Structure (or element) in poor condition with significant deterioration noted. Deteriorations noted may impact on integrity and may require significant capital cost to bring to fair to poor condition rating. No safety hazard noted. |
| 3 | <i>Fair/Poor Condition</i> | Structure (or element) condition varies from fair to poor with some signs of significant deterioration in localized areas. Able to perform function, but at reduced capacity.   |
| 4 | <i>Fair Condition</i>      | Structure (or element) in fair condition with no visible signs of significant deterioration. Able to perform intended function with no apparent hindrance.  |
| 5 | <i>Good Condition</i>      | Structure (or element) in good condition with minor deterioration. Able to perform intended function with no apparent hindrance.  |

OVERALL CONDITION RATING: 3  
0+000 TO 0+300



AS CONSTRUCTED NOTES	AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	DATE	BY	CONSULTANT OR DIVISION	ENGINEER'S STAMP	SCALE	TITLE	PROJECT No.
			1	SITE REVIEW	SEPT. 04	S.J.	Stantec Consulting Ltd. 171 Queens Avenue London ON Canada N6A 5J7 Tel. 519.645.2007 Fax. 519.645.6575 www.stantec.com		1:500	UPPER THAMES RIVER CONSERVATION AUTHORITY FLOOD CONTROL STRUCTURES	4A
										NELSON/CLARENCE DYKE	





AS CONSTRUCTED NOTES	AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	DATE	BY	CONSULTANT OR DIVISION	ENGINEER'S STAMP	SCALE	TITLE	PROJECT No.
			1	SITE REVIEW	SEPT. 04	S.J.	Stantec Consulting Ltd. 171 Queens Avenue London ON Canada N6A 5J7 Tel. 519.645.2007 Fax. 519.645.6575 www.stantec.com		1:500	UPPER THAMES RIVER CONSERVATION AUTHORITY FLOOD CONTROL STRUCTURES	SHEET No. 4B
										NELSON/CLARENCE DYKE	PLAN FILE No.