

ECOLOGY TECHNICAL NOTE

Reference:	9134.020 rev A
Date:	07.08.2024
Author:	Alun Evans
Approved:	Lee Greenhough



**THE
ENVIRONMENT
PARTNERSHIP**

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
Fax: 01925 844002
tep@tep.uk.com
www.tep.uk.com

Other Offices:
Market Harborough | Gateshead | London | Cornwall

PLANNING | DESIGN | ENVIRONMENT

1.0 Introduction

- 1.1 This technical note has been written in response to the comments received from Natural Resources Wales pre-application consultation for Land North of Bryn Lane, Wrexham, (reference CAS-220604-Z1M0, dated 14th July 2023), relating to ecology.
- 1.2 The document has been updated with reference to documents produced in response to NRW's comments.
- 1.3 Clarifications to the points raised are provided in the following table. Where relevant, reference is made to the sections of the submitted documents, including the Environmental Statement (ES), where the above points are considered / addressed.
- 1.4 Matters relating to Foul Drainage and Protected Sites and Land Contamination are not addressed in this technical note as will be addressed separately.
- 1.5 We would welcome further engagement with Natural Resources Wales (NRW) on the points below, in order to resolve the concerns of NRW. We would be happy to arrange a meeting to discuss these points in more detail, if required.

Ref.	Aspect	Natural Resources Wales comment	Applicant response
1.	Great Crested Newts	We advise that there is insufficient information to assess potential effects on GCN, and how any effects will be avoided or mitigated. We advise that further information is required to assess the extent of adverse effects on the species and any avoidance or mitigation measures required. This must demonstrate that the proposed development would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.	The assessment presented within the submitted Environmental Statement (ES) Volume 2, Chapter 11 'Biodiversity', considers the potential effects on GCN during both the demolition and construction and completed development stages. As presented in Sections 11.4 – 11.10 of the ES Chapter and ES Volume 4, Appendix 11.6, the baseline conditions on-site and in the surrounding area, as well as the potential impact of the proposed development, are well understood and it is considered there is sufficient information to assess the potential effects on GCN. In response to NRW comments further aquatic and terrestrial habitat for the population has been provided off site, as well as on site ecology corridors and mitigation areas. The precise details of GCN mitigation can be secured by planning condition. Further details are provided in the remainder of this table. A draft great crested newt method statement as now been produced which now demonstrates an increase in onsite and offsite mitigation and trapping proposals for the first phase of development. This provides adequate mitigation to maintain the favourable status of the species. Draft Method Statement 9134.025
		We consider that it is possible that the species utilizes the application site for breeding, foraging, dispersal or sheltering purposes. In our view, we consider that construction and operational phases of the proposal have the potential to adversely affect GCN. We therefore consider the overall proposal has the potential to cause disturbance to GCN and/or loss or damage to their resting places. GCN and their breeding and resting places are	It is agreed that the construction and to a lesser extent the operational phase of the proposal have the potential to adversely affect GCN. The impacts are considered in Tables 11.7.1 and 11.7.2 respectively of the ES Chapter. The potential to cause disturbance to GCN and/or loss or damage to their resting places is recognised and as referenced in section 11.8/Table 11.8.1 of the ES Chapter a

		protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and they are classed as a material consideration for planning under the provisions of Technical Advice Note 5: Nature Conservation and Planning (TAN5).	European protected species mitigation licence (EPSML) for GCN would be applied for from NRW following planning approval. This would contain a mitigation strategy detailing required mitigation, compensation and enhancement in respect to all anticipated impacts on GCN. A method statement as now been produced the demonstrate how we propose to avoid adverse effects on GCN. Providing additional offsite mitigation adjacent to the site, and additional features within the wildlife corridors. The method statement shows the trapping proposals for the first phase and has each phase of development comes forward, an updated method stamen will be produced and amended accordingly.
		We note that Table 11.4.1 describes GCN population as being of local importance in terms of ecological receptors. However, we consider that Wrexham Industrial Estate and its environs, supports a nationally important population of GCN and therefore advise that any impacts cannot be considered as local.	The GCN population is described as being of local importance in ES Table 11.4.1 based on the surveys undertaken and the fact that their presence within the county borough of Wrexham is widespread. Although the site is directly to the north of the Wrexham Industrial Estate the proposed development site is separated from it by Bryn Lane and the Industrial Estate Road which are lined by kerb stones on each side and are used by a high volume of heavy goods road traffic 24 hours a day. Whilst Wrexham Industrial Estate may support a nationally important population of GCN the proposed development site is separated from it and therefore unlikely to support a nationally important population.

			During consultation with Natural Resources Wales Senior Species Officer it was agreed a large GCN population could be assumed as being present within the development site and that additional surveys were not required to confirm this. An EPSML will be applied for on the basis of a large GCN population. The method statement addresses NRW concerns on large population the document notes this. The new mitigation areas includes ponds and hibernacula's maintain and increase the population, providing connectivity to the wider landscape The HMP (9134.05.001) provides information for the management of onsite and offsite habitats for GCN.
		We consider that the scheme constitutes a significant adverse risk to the current conservation status of the Wrexham Industrial Estate GCN population and therefore fails to demonstrate no detriment to the maintenance of the favourable conservation status of the local population of GCN. Our concerns include but are not necessarily limited to: a) the proposed extent of ecology areas associated with the development. We advise that at this locality the extent of ecology areas shall be at least equivalent in area to the size of the development, therefore an additional hectare	As discussed above the proposed developed site is not physically connected to the Wrexham Industrial Estate GCN population due to the intervening Bryn Lane and Industrial Estate Road and their use by road traffic. To maintain the favourable conservation status of the local population a number of embedded (section 11.6) and additional mitigation measures (section 11.8) are proposed within the ES Chapter. A response to each point is provided as follows: a) The NRW response requests an additional 1ha of land to be allocated for long term species conservation purposes. In addition to the on site

		should be allocated for long term species conservation purposes; b) Inadequate widths of the wildlife corridors along the northern boundary and through the site, insufficient detail regarding the viability and functionality of the wildlife tunnel connecting with off-site 3rd party land; c) Further consideration of the long-term tenure of ecology areas; d) Proposed approach to post development surveillance; e) Prevention of incidental capture/killing during the operational phase of the proposals; and f) Maintenance proposals set out appear to be tailored to SuDS specification, further information to demonstrate a clear difference in maintenance operations between SuDS features and ecology areas should be provided.	green corridors containing retained and newly created ponds, the Applicant has identified c.2.8 ha of off site land to be developed and secured for the long term conservation of GCN in response to NRW's comments. The mitigation site is located to the north of the Utopia site adjacent to the boundary at Francis Lane. The plans of the proposed mitigation proposals G9134.40. The plans include the provision of seven new ponds which will be delivered across the offsite land to provide for the long-term conservation of GCN. The site will be also sown with a wildflower grass mix and native scrub mixes and include hibernacula (no.5) to provide terrestrial habitat for GCN. These measures will specifically support the local GCN population in the long term which the current agricultural land use of the proposed development site does not facilitate. As a result the overall residual effects on GCN and common toad during the demolition and construction stage are considered to range from negligible, not significant to minor beneficial, significant at the Local level, and at the completed development stage impacts on GCN (and other S7 amphibians) from habitat loss/degradation and maintenance of FCS, with the implementation of additional mitigation are minor beneficial, significant at the Local Level. b) There are no definitive prescribed widths for wildlife corridors. The proposed width and areas of the
--	--	--	--

			corridors are shown in Appendix 1 of this note – in summary along the northern boundary the corridors are c. 20m wide on average, and the eastern landscaping corridor is c. 25m wide on average. The proposed landscaping area and bund to the north west of the site is c. 50m wide. The proposed central north-south ecology corridor which runs through the site is c. 38m wide. The wildlife tunnel has been proposed to allow movement for amphibian species (as well as small mammals) between the off site pond to the south and the green corridor within the site i.e. underneath the estate access road. Details can be secured by planning condition. The tunnel does not enter into the third party land and therefore it is deliverable within the Applicant's ownership. c) The requirement for long-term tenure of the ecology areas (both on and off-site) is acknowledged and following further discussions with NRW, the LPA and other parties this can be secured either by condition or Unilateral Undertaking legal agreement. d) The requirement for post development surveillance is acknowledged and will be form part of a Habitat Management Plan (HMP 9134.05.001). This can be secured by condition. e) The incorporation of wildlife kerbs and amphibian friendly gully pots/ ladders will avoid
--	--	--	--

			incidental capture/killing of GCN during the operational phase of development. Details can be secured by condition. Sensitive management of areas of amenity grassland will be included within the Landscape Ecology Management Plan (LEMP), which can be secured by condition. f) Maintenance regimes for the SUDS and ecology areas will be set out separately within the LEMP.
		We therefore advise that additional information should be provided for the purposes of demonstrating that it will not be detrimental to the maintenance of the FCS of the GCN population at this locality. The further or amended additional information should include but not necessarily limited to: 1 Submission of details and associated plans concerning GCN avoidance and mitigation measures including: fence design, specifications and proposed locations; fence monitoring and maintenance requirements; and supervised removal of barrier fences. Submission to include proposed timescales and reporting requirement. 2 Submission of revised details concerning on-site and/or off-site compensatory proposals including plans, extent, access, current and proposed tenure. This to include the functionality of ecology area for connectivity purposes. Extent to be at least equivalent to the area of development. Details shall identify areas of terrestrial and aquatic habitat to be retained, enhanced, and	The requirement for a European Protected Species Mitigation Licence (EPSML) for GCN from NRW following planning approval is acknowledged in Table 11.8.1 of the ES Chapter. A draft 9134.025 EPS Development Licence Method Statement As been produce in accordance with the request which includes, mitigation strategy detailing required mitigation, compensation and enhancement in respect to all anticipated impacts on GCN., together with long term monitoring. This detail can also be secured by planning condition and/or as part of the NRW EPSML as prepared for similar schemes in the locality. This would address points 1 and 3-9 of the NRW response. With regard to the provision of the extent of on/offsite compensatory proposals (item 2) there is no policy requirement to provide an area at least equivalent to the area of the development. The proposed development site is

		created. Submission to include future tenure, timescales and reporting requirements. 3 Submission of a long-term site management plan (for a duration of not less than 25 years*) that includes: a) defined aims and objectives (including targets that can be used as key performance indicators for monitoring purposes); b) habitat management prescriptions for aquatic and terrestrial habitats; c) appropriate amphibian reasonable avoidance measures; d) contingency prescriptions if fish and/or invasive non-native species (INNS) are detected; e) site liaison, wardening, incident reporting and response arrangements; f) detail of the skills and competencies required by those undertaking the works or activities including whether they require European Protected Species licenses for the activities proposed; g) current and proposed changes to tenure of the ecology area (freehold tenure of the ecology area to be approved by the discharging Authority in consultation with Natural Resources Wales) to ensure appropriate control over the land is established and the effective targeted delivery of long-term actions. We would	identified as an employment allocation under Policy SP11 of the emerging replacement Local Development Plan, as allocation reference KSS3 'Land to the north of Bryn Lane, Wrexham Industrial Estate' and Policy SP11 does not require the provision of an ecology area at least equivalent to the area of the development. As can be seen on the Nicholsons plan appended to this note, there are extensive green corridors proposed around the perimeter of the site and to the north of Unit 2 and as a central north-south corridor through the site. This reflects the policy requirements of Policy SP11 in relation to ecological corridors. In addition to these on-site areas, an off-site ecological mitigation area of c. 2.8. ha is also proposed, in response to the comments received from NRW to date, as described above.
--	--	--	---

		suggest the LPA consider the example provided of “responsible” under Part 7 of the Environment Act 2021; h) provision for periodic review mechanism for the Environment Management Plan; and i) Reporting requirements associated with species surveillance and habitat management j) Contingency measures that are capable of being implemented in the event of failure to undertake or appropriately implement / correct management or surveillance prescriptions including any required actions arising from unforeseen situations; 4 Submission of measures designed to prevent the accidental capture/killing of newts (amphibians) during operational (and decommissioning) phases of the scheme (i.e. post construction). This is essentially the installation and maintenance of an amphibian friendly surface water management system that does not include gully pots (or other similar features); 5 Details of timing, phasing and duration of construction activities and conservation measures; 6 Timetable for implementation demonstrating that works are aligned with the proposed development; 7 Ecological Compliance Audit, including key performance indicators (see below); 8 Post-construction monitoring plan. Monitoring plan to include:	
--	--	--	--

		a) Methodology: the Wales Great Crested Newt Monitoring Scheme shall be used with surveys being carried out on an [annual] basis; b) Duration: Not less than 25 years; c) Surveys shall be abundance counts and habitat quality assessments using Habitat Suitability Index (HSI) scores; d) Identification of individuals/bodies being responsible for monitoring and reporting results; e) Each water body shall be individually numbered on site and added to the Wales Great Crested Newt Monitoring Scheme, (see https://www.cofnod.org.uk/LinkInfo?ID=7) 9 Submission of a biosecurity risk assessment (See below)	
		When consulted by the LPA in conjunction with a full planning application, we would advise that any subsequent consent should also be subject to the provisions of a planning obligation (Section 106 Agreement/Unilateral Undertaking). Suggested planning obligation provisions should consider the following within any preliminary “Heads of Terms” document and subsequent obligation: a) A defined commuted sum and/or requirement for index-linked ground rent service charges to resource ecological surveillance, management	Noted. The requirement for long-term tenure of the ecology areas (both on and off site) is acknowledged and following further discussions with NRW and the LPA this can be secured either by condition or Unilateral Undertaking legal agreement. We would welcome more detailed discussion on this with NRW to address points a, b and d. In relation to point c, it is noted that this would not appear to be covered by NRW’s current scheme of charging Natural Resources Wales / Our charging schemes. Further detail is requested in terms of the proposed cost and scope of this, in

		and wardening (as informed by the updated Ecological Management Plan). b) Management Plan review and update. c) Funding to cover the cost of input from Public Bodies if required to review monitoring results/undertake liaison and comment on proposed Environment Management Plan Reviews. d) Tenure and any proposed changes to tenure to be carried out to the satisfaction of the discharging Authority in consultation with Natural Resources Wales to ensure the implementation of long term measures is secure.	order for the Applicant to understand this element of the response.
		This advice applies to the proposal in its present form. If the plans are changed in ways that may affect GCN on this site, you would need a revised ecology report that takes account of such changes.	Comments noted. We invite NRW's comments on the submitted updated Biodiversity ES Chapter and associated Appendices.
2	Bats	We advise that the Ecological Assessment has insufficient information to assess the need for avoidance / mitigation measures. Bats and their breeding and resting places are protected under the Conservation of Habitats and Species Regulations 2017. Where bats are present and a development proposal is likely to contravene the legal protection they are afforded, the development may only	Surveys of those trees with high or moderate potential for roosting bats trees which will be impacted by the detailed component of the proposed development have been completed in June and July 2023 (TEP Ref. 9134.04.001) (ES Volume 4, Appendix 11.12) and no roosts were identified.

		proceed under licence issued by Natural Resources Wales, having satisfied the three tests set out in the Regulations (Please also refer to Paragraph 6.3.7 of Technical Advice Note 5: Nature Conservation and Planning). Please note, for the purposes of providing advice at the planning application stage, our comments are limited to the test relating to “demonstration of no detriment to the maintenance of the favourable conservation status of European protected species”.	Technical Note 9134.024 provides information for future surveys and how we intend to proceed with future phases in accordance with Bat Guidelines. Any trees with high or moderate potential for roosting bats located within the outline component which require removal to facilitate the proposed development will be surveyed during the detailed design stage, prior to a reserved matters application. As confirmed in Table 11.8.1 of this chapter, these further surveys will be secured via an appropriately worded planning condition, as well as adherence with legislation. As such sufficient information is provided to enable the determination of the application with regards to impacts on bats.
		We advise that further information should be submitted to assess the extent of adverse effects on the bats and any avoidance or mitigation measures required. This must demonstrate that the proposed development would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range. We note that the activity survey of the buildings on site confirmed no bats observed emerging from the buildings. Section 4.5 and Table 8 of the Bat Roost Survey report confirms a total of 49 trees as having moderate to high suitability for roosting bats. Section 4.6 states that trees that will be ‘unavoidably impacted by the development’	Surveys of those trees with high or moderate potential for roosting bats which will be impacted by the detailed component of the proposed development have been completed (TEP Ref. 9134.04.001) and no roosts were identified. As such no specific mitigation for the loss of these potential trees features is therefore required. As confirmed above, surveys of those trees to be removed within the outline component and that have high or moderate potential for roosting bats, will be undertaken prior to the reserved matters application, once the scheme proposals have been developed.

		require additional survey in the form of nocturnal roost surveys and this should include lighting assessments. We concur with the report and advise that the results of the surveys should be submitted together with an assessment of the impacts of the scheme on these roost sites and proposals to avoid, mitigate or compensate for them. Where appropriate, this should be supported with detailed plans. All surveys should be undertaken in accordance with current published guidance.	The embedded mitigation (ES Table 11.6.1) includes planting of a minimum of 1,121 trees across the site including pedunculate oak trees which would be planted with sufficient space to become mature, thereby potentially becoming suitable for roosting bats in the long-term. Embedded mitigation also includes the provision of a minimum of 25 bat boxes within the site. The provision of details of such measures can be secured by way of a planning condition. A Sensitive Lighting Strategy will be implemented during the construction and operational stages of the development (ES Table 11.8.1). The overall residual effects on bats at the completed development stage range from negligible, not significant to positive/minor beneficial, significant at the Local level.
		In the meantime, we are unable to give you any assurance that the proposal would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.	No roosts were identified in the trees to be impacted the detailed component of the application. Although the extent of the tree loss within the outline component is currently unknown the proposal is considered to unlikely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range. The overall residual effects on bats at the completed development stage range from negligible, not significant to positive/minor beneficial, significant at the Local level.



Appendix 1: Landscape Strategy (Nicholsons Drawing Ref. 22-2630v5)



GENERAL NOTES:
Mature existing trees on site will be protected in accordance with BS5837 (2012) Trees in Relation to Design, Demolition and Construction and based on the approved Tree Protection Scheme for the site.
Bird and Bat box provision will be included on site using appropriate boxes in locations in line with Ecological recommendations based on findings of species on site and to help establish the wider bat and bird populations within the Industrial Estate.
Butterfly and Bee Banks can also be created in identified locations by using sharp sand over soil in a linear or horseshoe shape on South/West facing areas. A mosaic patchwork arrangement can support a rich diversity of invertebrate including the rare Dingy Skipper and Grizzled Skipper butterflies that are within the wider industrial estate site.
Footpaths have been aligned to avoid the Root Protection Areas (RPA) of existing mature tree groups on site to ensure continued health and longevity of species identified in accordance with BS5837(2012) guidelines.
Native Tree species will be used throughout the scheme and will follow guidance from the North Wales Wildlife Trust and ecological consultants to include suitable local species such as Pendurculet Oak, Field Maple, Alder, Birch and Crack Willow in appropriate locations.

PROPOSED LANDSCAPE ELEMENTS:
Proposed Trees in Detailed component: 575 no. mixed native species
Proposed Trees in Outline component: 546 no. mixed native species (Total: 1121 no.)
Proposed native hedgerow - Detailed and Outline component: 4830m (4.83km) mixed native species
Proposed hedgerow trees (larger sizes planted within hedgerows): 69 no. mixed native species
Ponds - proposed additional in-line corridor to be retained: 78m² (0.078ha) 16 no. additional 'step stone' ponds
Ponds - existing ponds in-line corridor to be retained: 90.1m² (0.090ha) 2 no. existing ponds
Relocated ponds within site: Pond 01 (242m²); Pond 02 (798m²); Pond 03 (740m²)

Contoured Mounding using landform in a flowing way can help define space and create a pleasant sense of enclosure
Bare Earth scarified mosaic mounds to provide butterfly and bee blank habitat and breeding grounds at intervals around site
Relocated Pond 01 from within site (242m²)
BUNDLING LANDFORM to follow engineers specification and to include native tree species, shade tolerant wildflower grass mix on north side of bund
BOUNDARY BUND PLANTING - native woodland planting using suitable evergreen and deciduous species will create screening from the outside and reinforce the existing boundary hedgerows
Informal seating spaces within landscaped areas
Wellness Trail circulation path to connect to external path system
Drainage swales along main avenue to follow Tier Consulting drainage strategy drawings
ENTRY SIGNAGE - brick signage walls, brick landform and G1 planting to create legible entrance
ENTRY ROUNDABOUT - wildflower grass mix
For Detailed Existing Tree Information, refer to TEP drawings D9134.01.200-203 Tree Constraints Plan and associated Arboricultural survey data sheets

BOUNDARY HEDGEROWS - protecting and enhancing the existing boundary hedgerows is important for visual screening but also as part of the wildlife corridors and habitats creating linear connections for commuting bats and bird species
Informal Boundary Planting - existing boundary planting can be enhanced with informal groups of native species to create a cohesive planting approach and improve the hedgerow characteristics
CENTRAL ECOLOGICAL CORRIDOR - 38m width wildlife connection corridor which retains existing trees, ponds with additional 'step stone' ponds, aquatic marginal planting, native trees and scrub, and wildflower species to further enhance this important site feature.
EXISTING TREE GROUPS AND HEDGEROWS TO BE RETAINED ALONG BOUNDARY
T93, T94, G12#, H18, T96, T118#, T95, T105, T103, T104, T102, T101, T100, T106, T107, T108, T109, T110, T112, T111, T113, T114, T115, T116, T117, T119, T120, T121, T122, T123, T124, T125, T126, T127, T128, T129, T130, T131, T132, T133, T134, T135, T136, T137, T138, T139, T140, T141, T142, T143, T144, T145, T146, T147, T148, T149, T150, T151, T152, T153, T154, T155, T156, T157, T158, T159, T160, T161, T162, T163, T164, T165, T166, T167, T168, T169, T170, T171, T172, T173, T174, T175, T176, T177, T178, T179, T180, T181, T182, T183, T184, T185, T186, T187, T188, T189, T190, T191, T192, T193, T194, T195, T196, T197, T198, T199, T200, T201, T202, T203, T204, T205, T206, T207, T208, T209, T210, T211, T212, T213, T214, T215, T216, T217, T218, T219, T220, T221, T222, T223, T224, T225, T226, T227, T228, T229, T230, T231, T232, T233, T234, T235, T236, T237, T238, T239, T240, T241, T242, T243, T244, T245, T246, T247, T248, T249, T250, T251, T252, T253, T254, T255, T256, T257, T258, T259, T260, T261, T262, T263, T264, T265, T266, T267, T268, T269, T270, T271, T272, T273, T274, T275, T276, T277, T278, T279, T280, T281, T282, T283, T284, T285, T286, T287, T288, T289, T290, T291, T292, T293, T294, T295, T296, T297, T298, T299, T300, T301, T302, T303, T304, T305, T306, T307, T308, T309, T310, T311, T312, T313, T314, T315, T316, T317, T318, T319, T320, T321, T322, T323, T324, T325, T326, T327, T328, T329, T330, T331, T332, T333, T334, T335, T336, T337, T338, T339, T340, T341, T342, T343, T344, T345, T346, T347, T348, T349, T350, T351, T352, T353, T354, T355, T356, T357, T358, T359, T360, T361, T362, T363, T364, T365, T366, T367, T368, T369, T370, T371, T372, T373, T374, T375, T376, T377, T378, T379, T380, T381, T382, T383, T384, T385, T386, T387, T388, T389, T390, T391, T392, T393, T394, T395, T396, T397, T398, T399, T400, T401, T402, T403, T404, T405, T406, T407, T408, T409, T410, T411, T412, T413, T414, T415, T416, T417, T418, T419, T420, T421, T422, T423, T424, T425, T426, T427, T428, T429, T430, T431, T432, T433, T434, T435, T436, T437, T438, T439, T440, T441, T442, T443, T444, T445, T446, T447, T448, T449, T450, T451, T452, T453, T454, T455, T456, T457, T458, T459, T460, T461, T462, T463, T464, T465, T466, T467, T468, T469, T470, T471, T472, T473, T474, T475, T476, T477, T478, T479, T480, T481, T482, T483, T484, T485, T486, T487, T488, T489, T490, T491, T492, T493, T494, T495, T496, T497, T498, T499, T500, T501, T502, T503, T504, T505, T506, T507, T508, T509, T510, T511, T512, T513, T514, T515, T516, T517, T518, T519, T520, T521, T522, T523, T524, T525, T526, T527, T528, T529, T530, T531, T532, T533, T534, T535, T536, T537, T538, T539, T540, T541, T542, T543, T544, T545, T546, T547, T548, T549, T550, T551, T552, T553, T554, T555, T556, T557, T558, T559, T560, T561, T562, T563, T564, T565, T566, T567, T568, T569, T570, T571, T572, T573, T574, T575, T576, T577, T578, T579, T580, T581, T582, T583, T584, T585, T586, T587, T588, T589, T590, T591, T592, T593, T594, T595, T596, T597, T598, T599, T600, T601, T602, T603, T604, T605, T606, T607, T608, T609, T610, T611, T612, T613, T614, T615, T616, T617, T618, T619, T620, T621, T622, T623, T624, T625, T626, T627, T628, T629, T630, T631, T632, T633, T634, T635, T636, T637, T638, T639, T640, T641, T642, T643, T644, T645, T646, T647, T648, T649, T650, T651, T652, T653, T654, T655, T656, T657, T658, T659, T660, T661, T662, T663, T664, T665, T666, T667, T668, T669, T670, T671, T672, T673, T674, T675, T676, T677, T678, T679, T680, T681, T682, T683, T684, T685, T686, T687, T688, T689, T690, T691, T692, T693, T694, T695, T696, T697, T698, T699, T700, T701, T702, T703, T704, T705, T706, T707, T708, T709, T710, T711, T712, T713, T714, T715, T716, T717, T718, T719, T720, T721, T722, T723, T724, T725, T726, T727, T728, T729, T730, T731, T732, T733, T734, T735, T736, T737, T738, T739, T740, T741, T742, T743, T744, T745, T746, T747, T748, T749, T750, T751, T752, T753, T754, T755, T756, T757, T758, T759, T760, T761, T762, T763, T764, T765, T766, T767, T768, T769, T770, T771, T772, T773, T774, T775, T776, T777, T778, T779, T780, T781, T782, T783, T784, T785, T786, T787, T788, T789, T790, T791, T792, T793, T794, T795, T796, T797, T798, T799, T800, T801, T802, T803, T804, T805, T806, T807, T808, T809, T810, T811, T812, T813, T814, T815, T816, T817, T818, T819, T820, T821, T822, T823, T824, T825, T826, T827, T828, T829, T830, T831, T832, T833, T834, T835, T836, T837, T838, T839, T840, T841, T842, T843, T844, T845, T846, T847, T848, T849, T850, T851, T852, T853, T854, T855, T856, T857, T858, T859, T860, T861, T862, T863, T864, T865, T866, T867, T868, T869, T870, T871, T872, T873, T874, T875, T876, T877, T878, T879, T880, T881, T882, T883, T884, T885, T886, T887, T888, T889, T890, T891, T892, T893, T894, T895, T896, T897, T898, T899, T900, T901, T902, T903, T904, T905, T906, T907, T908, T909, T910, T911, T912, T913, T914, T915, T916, T917, T918, T919, T920, T921, T922, T923, T924, T925, T926, T927, T928, T929, T930, T931, T932, T933, T934, T935, T936, T937, T938, T939, T940, T941, T942, T943, T944, T945, T946, T947, T948, T949, T950, T951, T952, T953, T954, T955, T956, T957, T958, T959, T960, T961, T962, T963, T964, T965, T966, T967, T968, T969, T970, T971, T972, T973, T974, T975, T976, T977, T978, T979, T980, T981, T982, T983, T984, T985, T986, T987, T988, T989, T990, T991, T992, T993, T994, T995, T996, T997, T998, T999, T1000, T1001, T1002, T1003, T1004, T1005, T1006, T1007, T1008, T1009, T1010, T1011, T1012, T1013, T1014, T1015, T1016, T1017, T1018, T1019, T1020, T1021, T1022, T1023, T1024, T1025, T1026, T1027, T1028, T1029, T1030, T1031, T1032, T1033, T1034, T1035, T1036, T1037, T1038, T1039, T1040, T1041, T1042, T1043, T1044, T1045, T1046, T1047, T1048, T1049, T1050, T1051, T1052, T1053, T1054, T1055, T1056, T1057, T1058, T1059, T1060, T1061, T1062, T1063, T1064, T1065, T1066, T1067, T1068, T1069, T1070, T1071, T1072, T1073, T1074, T1075, T1076, T1077, T1078, T1079, T1080, T1081, T1082, T1083, T1084, T1085, T1086, T1087, T1088, T1089, T1090, T1091, T1092, T1093, T1094, T1095, T1096, T1097, T1098, T1099, T1100, T1101, T1102, T1103, T1104, T1105, T1106, T1107, T1108, T1109, T1110, T1111, T1112, T1113, T1114, T1115, T1116, T1117, T1118, T1119, T1120, T1121, T1122, T1123, T1124, T1125, T1126, T1127, T1128, T1129, T1130, T1131, T1132, T1133, T1134, T1135, T1136, T1137, T1138, T1139, T1140, T1141, T1142, T1143, T1144, T1145, T1146, T1147, T1148, T1149, T1150, T1151, T1152, T1153, T1154, T1155, T1156, T1157, T1158, T1159, T1160, T1161, T1162, T1163, T1164, T1165, T1166, T1167, T1168, T1169, T1170, T1171, T1172, T1173, T1174, T1175, T1176, T1177, T1178, T1179, T1180, T1181, T1182, T1183, T1184, T1185, T1186, T1187, T1188, T1189, T1190, T1191, T1192, T1193, T1194, T1195, T1196, T1197, T1198, T1199, T1200, T1201, T1202, T1203, T1204, T1205, T1206, T1207, T1208, T1209, T1210, T1211, T1212, T1213, T1214, T1215, T1216, T1217, T1218, T1219, T1220, T1221, T1222, T1223, T1224, T1225, T1226, T1227, T1228, T1229, T1230, T1231, T1232, T1233, T1234, T1235, T1236, T1237, T1238, T1239, T1240, T1241, T1242, T1243, T1244, T1245, T1246, T1247, T1248, T1249, T1250, T1251, T1252, T1253, T1254, T1255, T1256, T1257, T1258, T1259, T1260, T1261, T1262, T1263, T1264, T1265, T1266, T1267, T1268, T1269, T1270, T1271, T1272, T1273, T1274, T1275, T1276, T1277, T1278, T1279, T1280, T1281, T1282, T1283, T1284, T1285, T1286, T1287, T1288, T1289, T1290, T1291, T1292, T1293, T1294, T1295, T1296, T1297, T1298, T1299, T1300, T1301, T1302, T1303, T1304, T1305, T1306, T1307, T1308, T1309, T1310, T1311, T1312, T1313, T1314, T1315, T1316, T1317, T1318, T1319, T1320, T1321, T1322, T1323, T1324, T1325, T1326, T1327, T1328, T1329, T1330, T1331, T1332, T1333, T1334, T1335, T1336, T1337, T1338, T1339, T1340, T1341, T1342, T1343, T1344, T1345, T1346, T1347, T1348, T1349, T1350, T1351, T1352, T1353, T1354, T1355, T1356, T1357, T1358, T1359, T1360, T1361, T1362, T1363, T1364, T1365, T1366, T1367, T1368, T1369, T1370, T1371, T1372, T1373, T1374, T1375, T1376, T1377, T1378, T1379, T1380, T1381, T1382, T1383, T1384, T1385, T1386, T1387, T1388, T1389, T1390, T1391, T1392, T1393, T1394, T1395, T1396, T1397, T1398, T1399, T1400, T1401, T1402, T1403, T1404, T1405, T1406, T1407, T1408, T1409, T1410, T1411, T1412, T1413, T1414, T1415, T1416, T1417, T1418, T1419, T1420, T1421, T1422, T1423, T1424, T1425, T1426, T1427, T1428, T1429, T1430, T1431, T1432, T1433, T1434, T1435, T1436, T1437, T1438, T1439, T1440, T1441, T1442, T1443, T1444, T1445, T1446, T1447, T1448, T1449, T1450, T1451, T1452, T1453, T1454, T1455, T1456, T1457, T1458, T1459, T1460, T1461, T1462, T1463, T1464, T1465, T1466, T1467, T1468, T1469, T1470, T1471, T1472, T1473, T1474, T1475, T1476, T1477, T1478, T1479, T1480, T1481, T1482, T1483, T1484, T1485, T1486, T1487, T1488, T1489, T1490, T1491, T1492, T1493, T1494, T1495, T1496, T1497, T1498, T1499, T1500, T1501, T1502, T1503, T1504, T1505, T1506, T1507, T1508, T1509, T1510, T1511, T1512, T1513, T1514, T1515, T1516, T1517, T1518, T1519, T1520, T1521, T1522, T1523, T1524, T1525, T1526, T1527, T1528, T1529, T1530, T1531, T1532, T1533, T1534, T1535, T1536, T1537, T1538, T1539, T1540, T1541, T1542, T1543, T1544, T1545, T1546, T1547, T1548, T1549, T1550, T1551, T1552, T1553, T1554, T1555, T1556, T1557, T1558, T1559, T1560, T1561, T1562, T1563, T1564, T1565, T1566, T1567, T1568, T1569, T1570, T1571, T1572, T1573, T1574, T1575, T1576, T1577, T1578, T1579, T1580, T1581, T1582, T1583, T1584, T1585, T1586, T1587, T1588, T1589, T1590, T1591, T1592, T1593, T1594, T1595, T1596, T1597, T1598, T1599, T1600, T1601, T1602, T1603, T1604, T1605, T1606, T1607, T1608, T1609, T1610, T1611, T1612, T1613, T1614, T1615, T1616, T1617, T1618, T1619, T1620, T1621, T1622, T1623, T1624, T1625, T1626, T1627, T1628, T1629, T1630, T1631, T1632, T1633, T1634, T1635, T1636, T1637, T1638, T1639, T1640, T1641, T1642, T1643, T1644, T1645, T1646, T1647, T1648, T1649, T1650, T1651, T1652, T1653, T1654, T1655, T1656, T1657, T1658, T1659, T1660, T1661, T1662, T1663, T1664, T1665, T1666, T1667, T1668, T1669, T1670, T1671, T1672, T1673, T1674, T1675, T1676, T1677, T1678, T1679, T1680, T1681, T1682, T1683, T1684, T1685, T1686, T1687, T1688, T1689, T1690, T1691, T1692, T1693, T1694, T1695, T1696, T1697, T1698, T1699, T1700, T1701, T1702, T1703, T1704, T1705, T1706, T1707, T1708, T1709, T1710, T1711, T1712, T1713, T1714, T1715, T1716, T1717, T1718, T1719, T1720, T1721, T1722, T1723, T1724, T1725, T1726, T1727, T1728, T1729, T1730, T1731, T1732, T1733, T1734, T1735, T1736, T1737, T1738, T1739, T1740, T1741, T1742, T1743, T1744, T1745, T1746, T1747, T1748, T1749, T1750, T1751, T1752, T1753, T1754, T1755, T1756, T1757, T1758, T1759, T1760, T1761, T1762, T1763, T1764, T1765, T1766, T1767, T1768, T1769, T1770, T1771, T1772, T1773, T1774, T1775, T1776, T1777, T1778, T1779, T1780, T1781, T1782, T1783, T1784, T1785, T1786, T1787, T1788, T1789, T1790, T1791, T1792, T1793, T1794, T1795, T1796, T1797, T1798, T1799, T1800, T1801, T1802, T1803, T1804, T1805, T1806, T1807, T1808, T1809, T1810, T1811, T1812, T1813, T1814, T1815, T1816, T1817, T1818, T1819, T1820, T1821, T1822, T1823, T1824, T1825, T1826, T1827, T1828, T1829, T1830, T1831, T1832, T1833, T1834, T1835, T1836, T1837, T1838, T1839, T1840, T1841, T1842, T1843, T1844, T1845, T1846, T1847, T1848, T1849, T1850, T1851, T1852, T1853, T1854, T1855, T1856, T1857, T1858, T1859, T1860, T1861, T1862, T1863, T1864, T1865, T1866, T1867, T1868, T1869, T1870, T1871, T1872, T1873, T1874, T1875, T1876, T1877, T1878, T1879, T1880, T1881, T1882, T1883, T1884, T1885, T1886, T1887, T1888, T1889, T1890, T1891, T1892, T1893, T1894, T1895, T1896, T1897, T1898, T1899, T1900, T1901, T1902, T1903, T1904, T1905, T1906, T1907, T1908, T1909, T1910, T1911, T1912, T1913, T1914, T1915, T1916, T1917, T1918, T1919, T1920, T1921, T1922, T1923, T1924, T1925, T1926, T1927, T1928, T1929, T1930, T1931, T1932, T1933, T1934, T1935, T1936, T1937, T1938, T1939, T1940, T1941, T1942, T1943, T1944, T1945, T1946, T1947, T1948, T1949, T1950, T1951, T1952, T1953, T1954, T1955, T1956, T1957, T1958, T1959, T1960, T1961, T1962, T1963, T1964, T1965, T1966, T1967, T1968, T1969, T1970, T1971, T1972, T1973, T1974, T1975, T1976, T1977, T1978, T1979, T1980, T1981, T1982, T1983, T1984, T1985, T1986, T1987, T1988, T1989, T1990, T1991, T1992, T1993, T1994, T1995, T1996, T1997, T1998, T1999, T2000, T2001, T2002, T2003, T2004, T2005, T2006, T2007, T2008, T2009, T2010, T2011, T2012, T2013, T2014, T2015, T2016, T2017, T2018, T2019, T2020, T2021, T2022, T2023, T2024, T2025, T2026, T2027, T2028, T2029, T2030, T2031, T2032, T2033, T2034, T2035, T2036, T2037, T2038, T2039, T2040, T2041, T2042, T2043, T2044, T2045, T2046, T2047, T2048, T2049, T2050, T2051, T2052, T2053, T2054, T2055, T2056, T2057, T2058, T2059, T2060, T2061, T2062, T2063, T2064, T2065, T2066, T2067, T2068, T2069, T2070, T2071, T2072, T2073, T2074, T2075, T2076, T2077, T2078, T2079, T2080, T2081, T2082, T2083, T2084, T2085, T2086, T2087, T2088, T2089, T2090, T2091, T2092, T2093, T2094, T2095, T2096, T2097, T2098, T2099, T2100, T2101, T2102, T2103, T2104, T2105, T2106, T2107, T2108, T2109, T2110, T2111, T2112, T2113, T2114, T2115, T2116, T2117